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Considerations on the Treatment of Paralytic Sequels of Poliomyelitis

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Paris

IT is generally admitted that the spontaneous motive recuperation of paralytic sequels due to poliomyelitis takes place during the first 15-18 months following the acute period of the disease.

After this period the state of the patient is generally consolidated and the paralytic phenomena can be considered as definitive.

During the time of recuperation, physiotherapic treatment should be followed with perseverance, for the patient must know he plays his game against definitive impotency.

We believe it is interesting to give physicians who are not very familiar with this neuro-physiological question a short statement of the precautions that should be taken to secure the success of the treatment and guarantee the future in case of their failure.

Let me first destroy the current prejudice that the impotent one's musculature must come back "in integrum" by mere motion, that his muscles will become "stronger" by exercise and that appliances are an obstacle to their natural restitution.

A normal muscular group has more or less a fusiform shape. It is resistant under the pressure of the hand, contracts itself at command and moves the human levers. This constant readiness to work is what the physiologists call muscular tension.

With a paralytic, such tension no longer exists. The muscle is flat, soft and does not contract itself any more. It no longer obeys. The muscular potency is lost.

With a paretic, i.e., with a patient whose muscles have kept some value, whose muscular tonus is only lessened, it is interesting to find out the value of the remaining potency. An electrodiagnosis enables us to establish, to a certain extent, the value of the quantitative and qualitative excitation of a muscular group.

It is indispensable to know if the paretic's locomotive group can afford to provide the efforts necessary to the lifting and propelling of the limb. In other words, it is indispensable to know beforehand whether the paretic group will be capable of being turned to account, whether appliances have to be considered and whether these appliances will have to *support* or *replace* the muscles.

The study of muscular potency and its valuation being very arduous, we do not mean to treat it here. We only ask the reader to remember that the muscular *potency* is equal to the work provided by the muscular group we are

speaking of, divided by time. As for the *work*, it equals the weight of the limb multiplied by the distance travelled over in its displacing.

The workman who lifts a shovelful of earth to the height of one meter, in order to throw it into a cart every 20 seconds, provides more work than the one who lifts half a shovelful to the height of 20 cm. every minute. It is clear that the muscular potency of the two workmen is not the same.

If we take it for granted that both workmen give each their maximum, without the least laziness, it would be very unjust of the master to expect the same work from both. If we ask the weaker man to provide, during a stated time, the same work as the stronger one, the employer should not be surprised at the fatigue and progressive exhaustion of his employee.

This example throws light on the whole problem of muscular potency. The first workman has normal muscles, the second one might be a paretic.

A muscular group stricken with paralysis will regain its former potency only if the motive fibres which command it have not been injured. If in spite of some alterations, the group is still capable of providing work near to normal, it proves that important muscular bundles have been spared and are able to make up for the insufficiency of the others.

In any case, when muscles show signs of paresis, it would be going against common sense to compel them to produce an effort identical with the one they were able to give before, or with the one produced by the same muscles in the opposite limb.

To increase the value of an injured muscle by means of training should not be attempted. It might bring about muscular exhaustion and compromise its recuperation.

The results obtained by some doctors who exaggerate mobilization are only due to the dislocation of the segments at the level of the articulations. That is how some succeed in making paralytics stand upright, in unstable balance. They transform the inferior limbs into an arc by hyper-extending the knees. It is a useless, condemnable system.

The human body stands vertically on the ground because the resultant of its physiological curves determines a line of gravity securing the balance of the segments that support the human load. This balance is held by the tonic action of the muscles playing the part of ropes of connexion. If we try to obtain the same vertical position with individuals whose ropes of connexion are atonic, loose, it is easy to understand that the aim can be reached only by creating a new resultant determined by new components, different from normal.

The patient being put out of joint, his inferior limbs will become placed in hyperextension, in order to have the knees behind the normal line of gravity. The fallen-in lumbar region will then form with the back and the lumbo-sacral area a long S, and the new line of gravity given by these pathological curves will pass in front of the knees. As the knees yield only to a certain extent, the inferior part of the frame will not break down.

The equilibrium in the standing position will therefore be obtained. But this acrobatic attitude will compel considerable extension of the posterior muscles. Calculation shows that for an individual weighing 60 kilos the force of resistance of this muscular group will have to be 368 kilos in order to maintain the upper part of the body in oblique balance at an angle of 15°. The superior part of the body will have to be propped by canes. The wrists on the canes will have to develop each a force of 25 kilos. Appalling numbers!

It is clear that such things cannot last. The lumbar region, the wrists, and the posterior muscles submitted to such efforts are very soon exhausted and the patient returns to his former impotency, which is aggravated and made definitely "irrecuperable."

We condemn an untimely and exaggerated mobilization, but we advise on the contrary to move the patients' articulations during the very first days and to prevent the patients from sitting up, or sinking too much into the bed. It will then be of great importance to find whether the paralytic has retained suppleness of all the axial movements of his extremities. The rational treatment of sequels due to poliomyelitis demands appliances. The setting up of these is a complex matter and supposes knowledge in physiology and mechanics.

The mechanical question being a complicated one, we shall not speak of it here. A good technician will easily become the assistant of the practitioner, provided the latter gives him the data of the physiological problem. Among these there is one which is often disregarded though it is very important.

We think it worth while to examine it carefully. It seems superfluous to state that appliances for paralytics can naturally be built for the superior limbs as well as for the inferior, but the greater difficulty lies with those built for walking. Of those only we shall speak here.

Among the pathological symptoms, some are *constant*. We know of many in tetanus, meningitis, etc. . . . No wonder they exist also in cases of paralysis due to inferior poliomyelitis. The muscular group comprising the gluteus medius and fascia lata is *always* affected and we may venture to say that in the most favorable cases of spontaneous recuperation, it remains more or less deficient. The action of that group is unfortunately of great importance in human statics.

The superior load of the body—head, trunk, arms, representing half of the total weight of the body—is exerted on the median part of the pelvis, the latter being held in balance like a scale-beam. The load being equally divided on the two thigh-bones, the thrust of which reaches the ground, it is obvious that the system securing the connexion between the pelvis and the two props (thigh-bones) plays a prevailing part. The femoral cap-bone remaining in its cavity, the load is transferred from this point to the vertical diaphysis of the femur by means of an oblique connecting-rod: the femoral neck. The orientation of the connecting-rod cannot, evidently, be modified without gravely endangering the balance of the body. The orientation is guaranteed by the energetic action of the two structures: gluteus medius and fascia lata. The latter connects the trochanterian extremity to the pelvis and the former pushes the connecting-rod into the cavity so as to maintain it there.

The tonus, in securing the constant tension of the muscles, secures the perfect orientation of the connecting-rod. The inferior limb is "hung up" to the pelvis by the muscular intermediary. We have already described this particularity in several circumstances and given the name of "appendors" to this group of muscles, meaning the word to convey immediately the idea of the part it plays in human statics.

If the appendors are deficient, the connecting rod remains in the cotyloïd cavity wherein it is tied by the round ligaments. But its opposite end, being dragged down by the weight of the limb, turns around its insertion point. Therefore, the defective limb seems to be longer. Whenever the limb presses on the ground, we shall see that in consequence of the vertical reaction exerted from bottom to top, equal as we know to the weight of the body, the limb will rise as far as the ex-

(*Concluded on page 276*)

Scientific Medicine and a Method in Medical Studies

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THE great French physiologist, Claude Bernard, said, "A good method teaches us to develop and to properly utilize our faculties, while a bad method prevents us from deriving any benefit from them. The former enhances scientific progress and supplies the scholar with means of detecting errors in his search for truth. This is the sole object of the experimental method." Pasteur was the first to appreciate properly the spirit of this method, which, from the time of Newton, was the essential feature only of physical sciences. "Perhaps now," said he, "it is impossible to realize the importance of it, but in twenty years, under the influence of this new scientific spirit, to which Bernard's name will remain forever attached, the clouds which are surrounding the slow and uncertain program of medical sciences will disappear."

Since then Pasteur's great discoveries, added to those of Claude Bernard, gave an extraordinary impetus to medical progress and a new road opened for medical science full of brilliant ideas and promising much for the future. Pasteur's studies on fermentation and on diseases of the silk worm prepared and indicated the path for serious researches in the domain of the pathogenesis of various diseases. The method consisted of controlling the ideas by profound studies of facts. While he gladly accepted a hypothesis, he always submitted it to his rigorous experimental method.

In his earlier studies of diseases the student should be imbued with this spirit, that acquired clinical and scientific knowledge can be beneficial to him only when he learns to develop the power of observation. Bichat, speaking of anatomy, said, "One must see nature and not only read about it." Clinical analysis and anatomical analysis constitute the main elements of observation. Facts should be carefully and completely collected, then analyzed and controlled.

Descriptive anatomy examines organs as they present themselves, also considers their invariable relation to each other. Clinical analysis adds to purely anatomical analysis the study of manifestations of pathological life. It shows the latter at its work and endeavors to explain the morbid phenomena by means of a minute study. The true character of the symptoms, their nature and degree, their changes, the consequences to which they lead—must all be noticed with great care. The greatest possible exactness should also be observed in the determination of the conditions in which the morbid symptoms originated; also an effort should be made to determine why they disappear and reappear. Finally the antecedents of the patient should never be overlooked, as they will render considerable assistance in forming judgment on the question why the same malady in one case runs a different course in another.

The observance of these rules is an absolute necessity, as the difficulties which the study of natural phenomena presents are frequently great. The apparent simplicity of the latter is deceiving, and, far from rendering our task easy, leads to errors.

The experimental method suggested by Claude Bernard is nowadays a necessity. Experimental analysis elucidates what clinical analysis has left unexplained. The union of these two methods of investigation becomes an accomplished fact. The clinician is certain to find in experimentation a method which he can trust, and to which he can address himself for verification of phenomena seen or foreseen, and this verification can not be too severe or too complete. Controlling proofs must necessarily be brought forward before phenomena can be accepted and considered as facts.

Scientific research derives from experimentation a guarantee upon which depends scientific progress. Experimental physiology and pathology have contributed considerably to the elucidation of many obscure questions concerning the functions of organs and tissues.

It is true that constant contact with diseases and patients supplies us with precious resources for scientific researches. It is also true that clinical education develops indispensable qualities for observation, but delicate problems which present themselves to the clinician cannot be solved without the aid of pathological knowledge and experimental knowledge. The true clinician is he who in his great work never ceases to have recourse to data from those two great sources, and acquires the habit of submitting his observations to the control of those two sciences. Medical education should begin with this spirit and be continued throughout the entire professional life. Only on this basis will science make progress. To ascend to causes of morbid phenomena is the chief object of medical science and this can be accomplished only by close observation combined with rigorous experimentation.

1812 Spruce Street.

Cardiac Hormone Therapy with a Muscle Extract in Angina Pectoris and Essential Hypertension

On the basis of 70 cases treated, Korach says that he has had excellent results from the use of an extract of muscle, in severe cases both of true angina pectoris and pseudoangina. In every case all other forms of medication were laid aside in order to give the new treatment a thorough test. To secure as prompt action as possible, subcutaneous or even intravenous administration was employed. Within 15-20 minutes after subcutaneous and even more quickly after intravenous injection, the agonizing spasm with pain radiating into the back and left arm was relieved, and with astonishing promptness there was a diminution of the dyspnea proceeding from the visceromotor reflexes of the chest musculature. Patients who just before the treatment had dreaded to make any least movement were shortly afterwards in a condition to leave the bed and walk about the room without pain. Objectively the effect of the muscle extract was shown in a slowing down of the tachycardia and a fall of systolic blood pressure amounting to 1030 mm. Hg in cases where an increase had appeared during the attack. There was a markedly good effect also on the so-called "chronic stenocardia" in long-standing cases of effort angina in which attacks were excited by movements, by going from a warm room into a cold one, facing a strong wind, etc., in patients accustomed to the use of nitroglycerin tablets for quick relief. In such cases the effects of an injection of 2 c.c. lasted on an average for 24 hours. When the pains returned, they were not, according to the patients, so severe. Prophylactic evening injections prevented night attacks more effectively than nitroglycerin tablets. Complicated cases should have absolute rest in bed, with intramuscular injections twice a day of 1½ to 2 c.c. each. These are reduced to 1 c.c. after 2 weeks have passed without an attack, and at the end of 3 weeks 1 injection daily suffices, finally treatment is peroral. The hypotonic effects observed induced the author to make use of the remedy in cases of essential hypertension, with astonishingly good results in some cases, but with occasional failures.—*Münchener medizinische Wochenschrift*, March 20, 1931.

Appendicitis

In a suspected case a leucocyte chart made every three hours will be a great help unless it is a severe case.

Spinal Anesthesia in Urological Surgery*

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Brooklyn, New York

THE majority of surgeons look upon spinal anesthesia as an unnecessarily dangerous method which should be condemned. A minority group agrees that spinal anesthesia is in certain cases the best anesthesia; however, since its usage either demands a specially trained anesthetist or imposes an additional task and an additional responsibility on the surgeon himself, this group declines to use the method except in rare instances. Another small group uses spinal anesthesia routinely in certain cases, and a still smaller group uses spinal anesthesia for almost every abdominal operation.

To me spinal anesthesia appears to be a method fraught with responsibility, but eminently worth while in a certain group of urological operations. That the method has its dangers is evident; respiratory paralysis, for example, is a complication which is so serious and which demands such strenuous efforts that the participant in such a scene can never forget it. Let us look at the shady side first. The latest statistics covering almost 250,000 anesthesias give a mortality of 0.076 in 100. A previous report of over 200,000 cases gave a mortality figure of 0.009 in 100. Babcock considers an expectancy of one death in 10,000 as about correct if proper selection and methods are used, but most of the smaller statistics give a mortality rate of 0.05 per 100. Of course this is much too high. The anesthesia mortality must approximate Babcock's estimate of 0.01 per 100 or the danger will outweigh the advantage. Babcock has almost proved that this can be achieved, and other workers have published such long series of anesthesias without mortality that they tend to confirm Babcock's estimate. With a still more rigid selection of cases even Babcock's estimate can be improved upon, since Babcock has used spinal anesthesia for supraumbilical operations while I shall only plead for its use in subumbilical procedures.

The following safeguards will make spinal anesthesia a relatively safe method:

1. The maximum dosis of novocaine must not exceed 120 mgm.

2. The method of injection must be such that an immediate upward distribution of the novocaine solution is absolutely avoided. Barbotage must be limited to the withdrawal of 2 c.c. of spinal fluid. The rate of injection must be so slow that only a mild current results, which means that 5 seconds should be consumed for the injection of 1 c.c. of the solution.

3. The third lumbar interspace should be the highest point of injection.

4. Trendelenburg position should not be allowed for ten minutes after injection. After this time it is advantageous.

5. A possible fall in blood pressure should be prevented by the immediately previous intramuscular injection of 50 mg. of ephedrine or of one c.c. of adrenalin solution 1:1000.

6. A trained attendant must watch the patient constantly and secure a blood pressure reading every five minutes. If a severe fall occurs immediate measures must be taken to counteract it.

With this technique, which will be considered ultraconservative by most routine users of spinal anesthesia, serious complications should be so rare as not to counteract the benefits of this splendid method. Aside from the above mentioned case of respiratory paralysis I have not seen either a death or even severe collapse due to the method in about 650 anesthesias; and this in spite of the fact that many of the anesthesias which I have given or watched have been high ones. The respiratory paralysis occurred in a male, 70 years of age, who received 150 mg. of novocaine in the second lumbar interspace with excessive barbotage and with immediate Trendelenburg position. No adrenalin or ephedrine had been given previously, but this would not have prevented the paralysis which undoubtedly was due to an upward diffusion of the novocaine solution.

The shock symptoms frequently seen in routine spinal anesthesias can be quickly and easily combated by adrenalin or ephedrine plus Trendelenburg position; it is merely required that no time be lost. In high anesthesias Babock's method of intravenous administration should be used.

Now as to the special advantages of spinal anesthesias in urological surgery. The first and outstanding advantage is complete anesthesia. Neither field block nor sacral block can approximate spinal anesthesia in this characteristic. The second advantage is complete relaxation of the abdominal musculature to which is added a tonic contraction of the intestines allowing plenty of room for complete dissection of and around the bladder. The third advantage lies in its usefulness if infected fields have to be entered, a particularly valuable point in urological surgery. In comparison with general anesthesia, which has a fairly high mortality rate in the aged, spinal anesthesia has the added advantage that fluid restriction, so harmful to those patients, does not take place for even as much as one hour.

The operations in which spinal anesthesia should be used as the method of choice are particularly bladder operations in which large dissections and resections are carried out. I am thinking particularly of neoplasms and of diverticula of the bladder. Operations on the lower ureter are strikingly easier with spinal anesthesia than with general anesthesia. The large group of drainage and amputation operations which take place in infected fields are best handled with spinal anesthesia, particularly urinary extravasations and phlegmons. Large infected scrotal abcesses which extend up to or nearly up to the external inguinal ring cannot be handled as well with local anesthesia as with spinal anesthesia. There is yet another possible application for spinal anesthesia, namely, for cystoscopy in very painful tuberculous bladders. Even a deep ether anesthesia will not prevent those patients from straining at even moderate distention; sacral block also is usually deficient in its anesthetizing power to control the defensive contractions of the bladder. A low, almost minimal, spinal anesthesia practically always will do it.

The contraindications to spinal anesthesia are limited to pathological conditions of the central nervous system, particularly tumors and infections, and to the impossibility of doing the injection aseptically, as, for example, in skin infections of the back. Debility of the patient is not a contraindication to the anesthesia as described, if it is not a contraindication to the operation.

80 Hanson Place.

* *Read before the Brooklyn Urological Society, February 10, 1931.*

The Diagnosis of Gall-Stone Disease*

With Especial Attention to Bile Microscopy and Cholecystography

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Philadelphia, Pa.

MR. CHAIRMAN, Ladies and Gentlemen:

I am afraid I will have to disappoint you if you compare my contribution to the one of last month (Note:—The President, in introducing Dr. Bockus, had referred to the fact that recently the Society had been calling upon Philadelphia for enlightenment in medical subjects, and that only the previous month it had been addressed by an eminent Philadelphia physician).

The advances in gall-bladder diagnosis have been rather striking during the last decade, largely due to innumerable contributions from physiologists all over the world and largely in this country, and due also, in a larger measure, to the contribution or the addition of two clinical diagnostic procedures, namely, cholecystography by Dr. Graham and his associates in St. Louis, and bile drainage by Dr. Lyon, of Philadelphia.

I hesitate a little in speaking about diagnostic methods which depend upon a duodenal tube, so close to Manhattan, but I am going ahead just the same.

The purpose of my remarks tonight is to evaluate these two methods, namely, cholecystography and non-surgical biliary drainage in gall-stone diagnosis.

Cholecystography already enjoys, and justly so, a high place in the diagnosis of gall-stone disease. Non-surgical biliary drainage, on the other hand, is not generally recognized as a procedure of merit in the diagnosis of cholelithiasis. There are two reasons for this: the first is that, as physicians, we have been very slow to recognize the fact that there are certain microscopic elements in the bile of patients who have gall-stones which are almost pathognomonic of stones; and the second is that the technical training required to carry out non-surgical biliary drainage from a diagnostic standpoint is not easily, or more correctly, quickly acquired.

There are two microscopic elements in bile which definitely have significance in the diagnosis of gall-stone disease. The first element is cholesterol crystals, which are generally recognized everywhere; the second element is not so generally recognized, and that is a substance composed of bile pigment and calcium. It is generally known as bilirubin calcium pigment, or calcium bilirubinate. It appears in the microscopic field as lustrous masses of irregular crystalline granules of golden yellow, orange or orange brown color, which are not easy to identify. However, one soon becomes familiar with them after having seen them a few times.

It is well to remember that these two elements, namely, cholesterin and calcium bilirubinate, form, in a large measure, the constituents of all gall-stones. It should also be stressed at the outset that it is necessary to evacuate bile from the gall-bladder in order to recover these two elements in the bile withdrawn through a duodenal tube. The pigment crystals in particular often appear microscopically, but can easily be missed because they are so small—very fine, brick dust-like granules often present in the bottom of the bottle containing bile. It is a strange thing that we do not see these elements so frequently in the mucoid or cellular flakes which are recovered from the bile. The experienced microscopist, however, has only to look very carefully for these little brick dust granules or dark colored flakes, although it is necessary in about 5 per cent. of the cases to centrifuge the bile in order to find them.

In our clinics at the Graduate and Presbyterian Hospitals in Philadelphia we have had the opportunity to follow a large number of cases to the operating table in which these two elements had been recovered from the bile preoperatively. So what I am going to tell you tonight is not based upon fancy, but upon operative check, except in a few cases in which the confirmation, unfortunately, was at the necropsy table.

CHART 1.

Operative Findings in 124 Cases in which Cholesterin Crystals or Bilirubin Calcium Pigment or both were Recovered from Bile Preoperatively.

	Stones			
	Cases	Per cent.		
Cholesterin Crystals (18 Cases)	16	89	Cholesterosis	1
Bilirubin Calcium Pigment (34 Cases)	31	90	Obstructive Jaundice	2
Both (72 Cases)	72	100		

96 Percent of cases with elements alone or together had Cholelithiasis.

Source of Error: Cholesterin—Cholesterosis
Pigment—Obstructive jaundice

Chart 1 represents a summary of 124 cases in which one or both of these elements were recovered from bile preoperatively. In this group in 18 cases cholesterin crystals alone were found; that is, cholesterin crystals without bilirubin calcium pigment. Sixteen of those cases, or 89 per cent, had stones; two of them did not, but one of these was a clear-cut case of cholesterosis of the gall-bladder, which, to all intents and purposes, really represents gall-stone disease of the metabolic variety. The calcium bilirubinate was recovered alone, in the absence of cholesterin crystals, thirty-four times in cases that afterwards went to operation. In thirty-one of them stones were found at operation of the other 3 cases, two had just recovered from attacks of obstructive jaundice and we felt the patients might have passed stones during the attacks, which were typical of biliary colic.

I almost hesitate to mention this—72 cases in which both of these elements were found associated in the bile preoperatively had gall-stones at operation. I am glad to be able to follow it up with this remark: since that time I have had a patient operated upon, in whom my own office assistant, who has had a great deal of experience with bile microscopy, found these two elements together and the patient did not have gall-stones. I am very happy to have had this case because I hate 100 per cent. of anything. Operation was performed by a very good surgeon who made a careful search, and I can assure you that no stones were found. Cholecystography showed negative shadows suggesting gall-stones. Grouping all of these cases together, those with one or both types of crystals, 96 per cent. of them had cholelithiasis, a large percentage. It would seem that the elements under discussion, when present either alone or together, suggest

* An address before the Medical Society of the County of Kings, Brooklyn, New York, February 17th, 1931.

very definitely the existence of gall-stone disease. A source of error that I would like to mention particularly is that cholesterol crystals alone may be significant of the so-called strawberry gall-bladder, or cholesterosis. I do not doubt at all but that cholesterol crystals will also be found in individuals who do not have cholesterosis and who do not have gall-stones, but I think it must be a rather rare finding. Bilirubin calcium pigment, if we exclude cases with obstructive jaundice, is almost pathognomonic of gall-stones. I think it is possible for the bilirubin calcium pigment to precipitate out of the bile in cases of long standing obstructive jaundice without gall-stones, but I doubt if it happens very frequently.

Let us look at this situation from another angle. One hundred and forty-eight cases of gall-stone disease were operated upon at our instigation. We will analyze these cases from the standpoint of the value of cholecystography and biliary drainage in diagnosis. We divided these cases into three groups, and that division was made depending upon the degree of gall-bladder function which was said to be present by the surgeon in his operative notes: Gall-bladders which contained bile were classified as functioning gall-bladders (chart 2); gall-bladders containing no bile at operation due to cystic duct obstruction, thickening of the wall or packing with stones, were classified as non-functioning gall-bladders (chart 4); and a smaller group in which the surgical notes were insufficient to make a definite classification of function (chart 3).

CHART 2.

Analysis of 79 Proven Stone Cases with Persistent Gall-Bladder Function at Operation.

Bile Drainage (79)			Cholecystography (52)		
	Cases	Per cent.		Cases	Per cent.
Stone positive	77	97		20	38.4
Doubtful stone	—	—		7	13.5
Quantity "B" Normal	50	63	Good visualization	29	56
Normal "B," no stone	1		Normal shadow, no stones	11	21
No "B," no stone	1		No visualization	11	21
			Faint shadow	12	23

Drainage superior to cholecystography in diagnosis of stone cases with normal functioning gall bladders.

In the first group (chart 2) there are 79 cases of gall-stones in which gall-bladder function was considered to be present at operation. Seventy-seven of them had a stone positive diagnosis made, depending upon bile drainage; that is, finding either one of these two elements which have been mentioned, or both, giving a positive stone diagnosis of 97 per cent. There were no doubtful stone cases listed because the pigment must be characteristic or the case is reported as negative. A normal quantity of "B" bile was recovered in 50 cases, or 63 per cent. Normal "B" bile without evidence of stones in one, no "B," without evidence of stones, in another. We do not find, or expect to find, evidence of stone by drainage if gall-bladder function is absent as indicated by failure to recover "B" bile.

Cholecystography. The cases were not classified separately, depending on whether the method followed was oral or intravenous; one-third were intravenous studies and two-thirds oral. There were 20 cases, or 38.4 per cent., in which a positive stone diagnosis was made by cholecystography. Doubtful stone shadows were reported in 7, or 13.5 per cent. It is not fair to include many of these cases, however, because many cases of this sort which are operated upon do not have gall-stones. Good visualization was present in 29, or 56 per cent., fairly comparable with the recovery of "B" bile by drainage.

The greatest source of error in cholecystography in our experience is revealed by these figures—21 per cent. of cases with normal visualization without evidence of positive or negative stone shadows in this group had stones at operation. I think it is only fair to say that in the past nine months, with improvement in cholecystographic technic, we have seen fewer cases of this sort, but here are 11 definite errors in which cholecystography was normal, by *x*-ray, but cholesterin or calcium bilirubinate crystals were found in the bile preoperatively and stones were present at operation. There was no visualization in 11, or 21 per cent., and a faint shadow in 12, or 23 per cent.

There is no question in my mind but that bile drainage is definitely superior to cholecystography in the positive diagnosis of stones. I am comparing the findings of these two elements in the bile with the presence of positive or negative shadows by cholecystography. If you include non-functioning gall-bladders as determined by cholecystography in the stone group there is not quite so much to choose between the two methods.

CHART 3.

Analysis of 26 Proven Cases of Cholelithiasis with Questionable Gall-Bladder Function at Operation.

Bile Drainage (23 Cases)			Cholecystography (16 Cases)		
	Cases	Per cent.		Cases	Per cent.
Positive stone	20	87		3	19
Doubtful stone	—	—		3	19
Normal quantity "B"	8	34.8	Normal shadow	0	
Absent "B"	5	22.0	Absent shadow	13	81
Trace "B"	10	43.2	Faint shadow	3	19
Pathologic gall-bladder		96			100

Drainage superior positive diagnosis of stones.
Cholecystography superior positive diagnosis of pathologic gall-bladder.

Here is an analysis of 26 proven cases of cholelithiasis that we did not classify according to function as the surgeons' notes were inadequate. Twenty-three of them were drained. A positive stone diagnosis was made in 20, or 87 per cent. A normal quantity of "B" bile was present in 8, or 34.8 per cent. So a good many of these cases undoubtedly had functioning gall-bladders. Absence of "B" bile was noted in 5, or 22 per cent. A trace of "B" bile was recovered from 10, or 43.2 per cent. Evidence of pathologic gall-bladder by drainage, 96 per cent.

Now, 16 of these 23 cases had cholecystographic examinations. Only 3, or 19 per cent., showed positive stone shadows: if you wish to include the doubtful cases, of which there were 3—38 per cent. What is the reason for this apparent discrepancy between results obtained by these two methods? If repeated stimulations are given and drainages repeated on doubtful cases "B" bile may be recovered from the gall-bladder containing the crystalline elements in many cases which fail to visualize by cholecystography. A normal cholecystographic shadow was not found in any of these cases. Absent shadow in 13, or 81 per cent. Faint shadow in 3, or 19 per cent.

From an analysis of this group I think it is fair to say that drainage is superior to cholecystography in the positive diagnosis of stone, although it is not superior as far as judging gall-bladder function goes.

CHART 4.

Analysis of 43 Proven Cases of Cholelithiasis with Absent Gall-Bladder Function at Operation.

Bile Drainage (41)			Cholecystography (28)		
	Cases	Per cent.		Cases	Per cent.
Positive stone	22	53.6		5	17.8
Doubtful stone	1	—		1	3.6
Absent "B"	26	65	Absent shadow	22	78.6
Doubtful trace					

"B"	13	32.5	Faint shadow	6	21.4
Normal "B"	1	2.5	Normal shadow	0	
Positive stone or deficient "B" in 100 per cent.			Positive stone or deficient function in 100 per cent.		

Chart 4 presents an analysis of 43 cases in which from the operative notes there was absent gall-bladder function at the time of operation.

Forty-one of these cases had a bile drainage performed. A positive stone diagnosis was made by microscopy of the bile in 22, or 53.6 per cent. Notice the drop in percentage: although it is still slightly over 50 even in this group of so-called non-functioning gall-bladders. This confirms our previous impression that a small amount of "B" bile can be recovered from many non-functioning cases. Absence of "B" bile was noted in 26, or 65 per cent. of the cases. Doubtful trace of "B" bile is mentioned in 13 cases, or a percentage of 32.5. Normal "B" bile was present in 1, or 2.5 per cent., in which the gall-bladder did not function.

Cholecystography. Twenty-eight cases had cholecystograms. Positive or negative stone shadows were present in 5, or 17.8 per cent.; doubtful stone shadow in 1, or 3.6 per cent.; absent shadow in 22, or 78.6 per cent.; faint shadow in 6, 21.4 per cent.; and normal shadow in none. Either deficient function or positive evidence of stone was noted in 100 per cent. of cases by each method.

CHART 5.

Analysis of 15 *Cases of Common Duct Stone.*
(9 Cases with jaundice at operation).

Bile Drainage

"B" bile absent	11
Bilirubin calcium pigment	7
Pigment and cholesterin crystal	6
Stone—positive by drainage	86.6%

Cholecystography (9 Cases)

1. Function at operation:		Visualization:	
Absent	6	Absent	6
Doubtful	2	Faint	2
Normal	1	Normal	1

2. Stone shadows—1 case
3. Disadvantages of cholecystography in obstructive jaundice:
   A. No visualization in normal cases frequent.
   B. Dye toxic because of liver dysfunction.

Common duct stone after cholecystectomy (3 Cases).

Diagnosis by bile drainage	2 cases.
By cholecystography	1 case.

Chart 5 shows a very important group from the standpoint of diagnostic biliary drainage because it is in this group that diagnosis is often so difficult—cases of obstructive jaundice; is stone present or not? Cholecystography, unfortunately, is of very little assistance because the liver function is disturbed as a result of the obstructive jaundice and an insufficient amount of dye is removed from the blood-stream by the liver, so that we do not expect visualization by cholecystography. We rarely order cholecystography in cases of obstructive jaundice at any rate because we feel that the liver is already damaged as a result of the jaundice and the toxic effect of the dye is feared.

It happened that in 15 cases of common duct stone only 9 had jaundice at the time of operation. No "B" bile was obtained in 11 of these cases, but bilirubin calcium pigment was present in 7 and pigment with cholesterin crystals in 6 cases. A positive stone diagnosis was made in 86 per cent. of cases by bile drainage. This may be compared with a positive stone diagnosis by cholecystography in only 1 case. It is interesting to note in this particular case that the gall-bladder had been removed previously. The stones took up some of the dye and showed very nicely as positive shadows on the films. Flat films taken before the administration of the dye did not show the stones.

CHART 6.

Summary of 148 *Proven Stone Cases.*

	Bile Drainage (143)		Cholecystography (96)			
			This Series		*Kirklin Case*	*Lord*
	Cases	Per cent.	Cases	Per cent.	Per cent.	Per cent.
Positive stone	119	83.2	28	29.2	40	53	27.5
Positive stone or deficient function	141	98.3	85	88.4	97	95	95.0

Positive stone diagnosis by first drainage, 59.3 per cent.
Absence of "B" (3 times) and absent shadow (oral, 2 times or intravenous once) = Pathologic gall-bladder, usually stones.

Chart 6 summarizes 148 proven stone cases. Of this number 143 had bile drainage; 96 had cholecystography. A diagnosis of positive stone was made in 119 based on bile microscopy, giving a percentage of 83.2. Only 28 cases, or 29.2 per cent., had positive or negative stone shadows by cholecystography.

I have taken the liberty of comparing our series here with a series of Kirklin at the Mayo Clinic, where they had 40 per cent of positive stone diagnoses by cholecystography using the oral method, with a series of Case, formerly of Battle Creek, in which there was 53 per cent. of positive shadows, and with a series of Lord, in which they had 27.5 per cent. of positive diagnoses by cholecystography. Evidence of positive stone or deficient function was found in 141 of the 143 cases drained, giving us an incidence of 98.3 per cent. That might be compared with positive stone or deficient function by cholecystography in 85 cases, a percentage of 88.4. You will notice that our percentage is lower than that of Kirklin, Case, and Lord. I think it is only fair to say that if we had relied on one drainage to make a stone diagnosis, our incidence of positive diagnosis by drainage would have been reduced from 83.2 to 59.3 per cent. In other words, about one-third of the cases were drained more than once before we found the elements that I am talking to you about. However, this figure can still be compared with cholecystography because even a greater number were *x*-rayed more than once, some twice, some three times, and a few even four times.

Absence of "B" bile three times and absent shadow by cholecystography, twice orally and once intravenously, is fairly good evidence of a non-functioning gall-bladder. A persistently non-functioning gall-bladder, in my experience, is usually due to gall-stone disease.

Just a few words in conclusion.

In these 148 cases that I have gone over with you a history of gall-stone colic was present in only 46 per cent. You must realize, as I certainly do, that in many cases of so-called gall-stone colic the symptoms are not due to gall-stone. In other words, many of these patients with histories that sound typical, when followed through, are found to be suffering from some other condition in the upper abdomen. The association of colic with jaundice was present in 30 per cent. of cases. Excluding that group with a fairly definite history of colic with jaundice, we feel that a laboratory aid is necessary to a definite diagnosis in about 70 per cent. of cases; not only necessary, but absolutely essential.

Biliary drainage yields a much higher percentage of positive stone diagnosis in our experience than does cholecystography. The absence of bilirubin and calcium pigment and cholesterol crystals in the bile and the absence of positive or negative shadows by cholecystography pretty well rules out gall-stone disease, provided gall-bladder function persists. A repeated absence of dark bile and no shadow by cholecystography is commonly due to gall-stones; more commonly than to anything else, in our experience.

If gall-bladder function persists, we have found simultaneous cholecystography with *x*-ray of the stomach and

duodenum a very excellent aid in the diagnosis of pericholecystitis. I hope you are all using that method. It is indeed a very gratifying one in some very puzzling cases of upper abdominal symptoms which often simulate duodenal ulcer. Of course, if the gall-bladder does not visualize, then a simultaneous visualization of the stomach and duodenum won't help in making a diagnosis of pericholecystic adhesions. I might say that we have often, when the gall-bladder visualizes, filled the colon by a barium enema in order to ascertain the presence of adhesions between the gall-bladder and the colon. These two procedures constitute decidedly worth-while additions to the *x*-ray diagnosis of gall-bladder disease.

Biliary drainage, I feel, is a study of paramount importance in suspected common duct stone cases. I am gratified to state that several very prominent surgeons around the country are now utilizing this method in cases of common duct stone with jaundice.

I would like to mention the fact that occasionally you and I will see a patient with suspected gall-bladder disease, a patient who is too ill to have a tube study made, or even have a cholecystographic study. It may be a patient with persistent vomiting; I have just recently had such a case. In such cases examination of the vomitus may yield the characteristic bile pigment or cholesterol crystals, suggesting a diagnosis of stones. It is of value, therefore, to search the vomitus for the crystals under discussion in very ill patients in which the diagnosis is in doubt. I would like also to say that occasionally following gall-bladder colic these same elements can be recovered from the stools, so that you do not have to be duodenal tube experts in order to utilize this information in regard to the importance of cholesterol crystals and calcium bilirubinate pigment in the diagnosis of cholelithiasis.

Finally, I would like to say that it is my view that there is no longer much excuse for exploratory operation in suspected chronic gall-bladder disease. Surgical treatment, I feel, is rarely necessary in chronic cases in which no evidence of pathology can be detected by these two methods.

250 South Eighteenth Street.

Considerations on the Treatment of Paralytic Sequels of Poliomyelitis

(*Concluded from page 270*)

tension of the atonic fibres will allow it. At this moment, the defective limb will seem shorter.

This alternate telescoping of the limb, due to the deficiency of the appendors, causes a very peculiar "broken" walk, because of the relaxation of this group.

The action of the appendors is generally ignored. Physicians unfortunately disregarding its importance cannot guide the technician who constructs the apparatus and whose good will is not sufficient to solve the problem.

What lessons are there to be derived from the knowledge of the part played by the appendors? First, don't let a paretic, nor a paralytic, walk by means of systems contrary to human physiology. Remedy at once the deficiency of the appendors.

Secondly, call the electrologist's attention, at the period of physiotherapic treatment, to the phenomena of degenerescence of this group. It generally shows a modification of its excitability.

Thirdly, give the muscular group recuperating appliances to assist it or even replace it, when the physiotherapic treatments have not been able to prevent the consolidation of paralytic sequels.

Practically, we mean to say that temporary appliances are indispensable at the beginning of the paralysis in order to help the physiotherapic treatment and prevent vicious attitudes.

It falls to the electrologist to collaborate with the physician who has to deal with the appliances. They have to decide together what kind of appliances should be worn and transform them according to the patient's state of health. One of the doctors plays the part of an engineer. The electrologist, being a physicist, will assist the former with his technical knowledge. Their close collaboration will be very beneficial to the patient.

In cases of consolidated sequels, when all other treatments have become inefficient, a well-conceived apparatus of recuperation will enable the paralytic to walk and to take back his place in family and society. If appliances are absolutely necessary during the period of physiotherapic treatment in order to relieve the weak muscles on the way to recovering their motive function, it is even more important, if possible, when the patient has become definitively bedridden.

The mechanism comprising different appliances, which we are wont to call an apparatus, supposes a rather complicated problem of mechanics which, in general, cannot be solved by the artisans of orthopedy.

It is sad indeed to think that a prosthetic art which corresponds to a deeply felt need on the part of patients after accidents, surgical operations or paralysis, has not improved in the last century! Stays with props are still being used in 1931 and this heresy hardly astonishes anybody!

The physician himself has to take an interest in functional recuperation. No need to possess transcendental mathematics! The studies we have all made include more than is necessary to understand and to make a technician understand the problems of human recuperation. The doctor establishes the balance-sheet of the deficiency, points out the modifications of the force-lines created by the alterations of the physiological normals, makes suggestions, and the engineer will carry out the mechanical problem.

The fascinating question of recuperating human function will then cease to be an unexplored sphere. The impotent patients who have lost all hope of independence will no longer fill the hospitals for the incurable, nor unnecessarily burden the national budget. Charity will do better work in helping those "recuperated" to earn their living and return to social life where they can again become producers.

Physicians can make these hopes become real.

Palliation of Anginal Pain

One of the latest attempts to find a remedy for anginal pain is described by Dr. H. Krauter (Les Algies Précordiales et leur traitement par les injections topanalgésiantes. By Henri Krauter. Thèse de Paris. Jouve et Cie, 1931.) Stimulated by the successes of Dr. Godel of Prof. H. Vaquez's clinic in Paris, he set out to test for himself the effect of injections of an analgesic substance in true angina and other forms of left præcordial pain. As a result he claims that satisfactory results can be got in a good proportion of cases of true angina and that a measure of success is obtainable in inframammary pain. The substance he uses is a salicylate of benzyl and camphor dissolved in oil, and is sold under the name of Camphrosalyl. The injections are made subcutaneously over and round the site of greatest pain, one or two ampoules containing 5 c.cm. of the drug being used at each sitting. It may be necessary to repeat the injections at intervals for several weeks, for the pain which, it is said, often vanishes after the first, may return later. Krauter states, however, that it disappears altogether or is very much alleviated with repeated treatments. It is disappointing to learn that the results are indifferent in the large group of cases of so-called functional præcordial pain where there is also much need of relief. Again in true angina this treatment can only be palliative, and if the warning pain is banished the patient will get a false sense of security, and be tempted to overstrain an already much-burdened myocardium. If the method is used only for those cases that resist all other forms of therapy its scope will be small; nevertheless, it might be definitely valuable within these limits.—*The Lancet*, June 13, 1931.

Some Facts About the Gall-Bladder*

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THE gall-bladder cannot be regarded as an independent entity when it is affected by the numerous grades of inflammation with which we are so familiar. The liver, pancreas, spleen, stomach and duodenum, perhaps other glandular structures in the neighborhood, have also an influence on the symptom complex. A study of the liver is important because at operation we see many gross changes upon which a prognosis can be made. It is a well known fact that the rounded edge demonstrates that there is a concomitant hepatitis. The lobes as a whole may also be enlarged as a result of the transmission of inflammatory effects to its structure. Its edge may be exceedingly thin which may mean that there has been some absorption of the pulp following an inflammatory reaction. This has frequently been observed in cases of gall-bladder disease that have been symptomatic for a long time; in other words cases of chronic cholelithiasis or cholecystitis. Near the edge of the liver, and extending some distance into the parenchyma to a greater or lesser degree, may be seen fantastic streaks of connective tissue. This is the result of deposits of fibrous tissue due to long continued processes of inflammation. It is a well known fact that connective tissue may replace normal tissues after the inflammation has passed away. Nor is the liver an exception to this rule. Such areas may be called localized points of cirrhosis. Larger areas of cirrhosis may be observed causing varying degrees of hardness and a blanching of its surface. The replacement of normal tissue by connective tissue influences greatly the ultimate outcome of the recovery of the patient. The change of color seen on its surface is most important because upon this alone the surgeon is able to prognosticate. From the normal brown color there are all sorts of gradations. Whitish areas here and there do not portend a serious consequence. A paling should be taken as a grave prognostic sign, but it is not nearly so serious as a true anemia of one-third or one-half of its body. This shows a serious blockage of the circulation due to thrombosis of the hepatic artery or one of its tributaries. Only one human has been known to have survived a condition of this sort, while all or nearly all animals perish if this contingency is induced as the result of experiment. Last summer I operated upon a physician who presented this picture. I demonstrated this to those present and gave a decidedly bad prognosis. The patient died four days after operation. In these cases the portion of the organ affected is anemic and must be distinguished from fatty infiltration or degeneration. The latter may be present at the time of operation or indeed it may follow as a complication. Acute yellow atrophy occurred in two of our cases operated upon with fatal results. In one, in addition, there was also found at autopsy an acute hemorrhagic pancreatitis which probably contributed more to the fatality than the degenerative changes. Death, however, could occur from either one of these conditions. Fortunately these complications are rarely seen in practice.

The pancreas is responsible for many symptoms referable to the gall-bladder. Probably enough attention has not been paid to this organ by the rank and file of the profession. Fleeting acute attacks of pancreatitis give the same symptoms as gall stones. It is impossible to separate the two conditions and the only method of satisfying oneself is an operation by means of which we can visualize and palpate the organ. The head of the pancreas may be moderately or stony hard. Upon this depends a gradation of symptoms running from the mild so-called gall-bladder attacks to complete obstruction of the flow of bile, resulting in profound jaundice. The body and the tail may be independently affected, producing symptoms not as severe as those when the head of this organ is the seat of disease. Again the entire organ may be chronically inflammed producing a structure that feels like a solid mass. It requires quite a little experience to differentiate the normal from the diseased pancreas especially when the inflammatory process has not advanced to a marked degree. We have stated that obstructive symptoms may result on account of the changes in the parenchyma, but little thought has been given to the disturbance in the normal physiology of this organ. There is undoubtedly a change in the production of the amylolytic, proteolytic and steatolytic ferments which play such an important rôle in digestion. Together with bile the steatolytic ferment aids in the digestion and the absorption of fats. No doubt the failure of this ferment has much to do with many gastrointestinal symptoms of which the patient complains. Another factor which one must remember is the number of variations that may occur where the ducts of Wirsung and Santorini empty into the duodenum. It is well known that the admixture of bile and pancreatic fluid may precipitate an attack of acute pancreatitis. This actually occurred in a case where it was necessary to remove a stone embedded at the papilla of Vater by means of the transduodenal route. The papulla of Vater had to be incised so that the stone could be enucleated. In doing this no doubt there was admixture of bile and pancreatic juice which caused the explosion in the pancreas. Intense pain following operation could not be accounted for until the post-mortem was performed.

The spleen while somewhat removed from the region of the gall-bladder and the liver is intimately connected with the biliary and hepatic systems on account of the blood brought through the splenic vein to the portal vein. Hemolytic jaundice must be differentiated from the obstructive type. The former has its origin in the spleen, while the latter is due to a stone in the common duct or a new growth. The two conditions can be verified by blood studies and the Van den Bergh test. Splenomegaly always occurs when there is a disturbance in the function of this organ and the hematopoietic system.

The stomach is affected reflexly when there is a disturbance in the biliary system. The patient complains of pain in the epigastric region, belching of gas, and distention of the upper part of the abdomen. These symptoms are especially noticeable after eat-

* Read before the North Branch of The Philadelphia County Medical Society, March 26th, 1931.

ing. It is necessary to be on one's guard and not attribute all symptoms to the gall-bladder but remember that ulcer of the stomach, and early carcinoma may give rise to symptoms similar to those resulting reflexly from disturbance of the gall-bladder.

The anterior portion of the duodenum is the reservoir for bile and pancreatic juice. Reflexly there are no symptoms referable to the duodenum that we can definitely diagnose as originating in the biliary system. The duodenum may be a source of infection for the gall-bladder but its contents are usually sterile. For example, surgeons can operate with impunity on this portion of the intestinal tract without a resulting infection. I have never experienced peritonitis to occur after an operation on any part of the stomach or small intestine.

In the center of the stage of this vicious circle is the gall-bladder and its bile passageways. The gall-bladder has been a topic of discussion perhaps more than any other intraabdominal organ. Much has been said about its physiology and many controversies have arisen as a result. It is admitted that it has a very feeble musculature and the function of this is disputed. Some believe that the bile remains an indefinite period, that water is extracted from the bile and that the mucous membrane of the gall bladder produces a solid substance which mixes with the bile and thus concentrates it. It is again said that the gall-bladder empties itself into the process of digestion and that when the papilla of Vater is closed the cystic duct is open. That the gall-bladder empties itself has been shown repeatedly in the use of cholecystography for diagnostic purposes. This phenomenon is easily seen after a fat meal. Yet the absolute functions of the gall-bladder have not been settled. On account of its 25% of variations in the formation of its ducts and blood vessels and indeed the gall-bladder itself, we may have a source of symptoms which were given little thought in the past. The congenital bands and inflammatory adhesions which bind the gall bladder to the stomach and duodenum contribute no small factor in causing symptoms in these structures. Contortion of the cystic duct greater than its normal convolutions, causing obstruction to the flow of bile, may give rise to symptoms similar to attacks of cholelithiasis. It is a well known fact that surgeons refrain from removing a gall-bladder that shows no outward sign of disease such as chronic cholecystitis, but when in doubt it is much better to remove it. History of the patient will be of great benefit in this decision. But there should be no hesitancy in removing a gall-bladder when congenital or inflammatory bands are found at operation. After a meal and during digestion the bands referred to when attached to the stomach and duodenum, may simulate the common gastrointestinal symptoms with which we are so familiar.

Stones in the gall-bladder give rise to colic when they move down the cystic duct to enter the common duct. However, when dormant, they give rise to no symptoms at all *per se*, but may develop the reflex gastric symptoms referred to above. Stones that enter the common duct and stay there cause jaundice. In fact any obstruction to the common duct, whether that be in the duct or outside, such as tumors of the pancreas and the papilla of Vater, causes jaundice. There is no such entity as catarrhal jaundice because there must always be an obstructive factor to cause jaundice.

Symptoms and the consequent diagnosis remain about the same for every disease. The methods of attaining the diagnosis by physical examination, the laboratory and other instruments of precision are rather constant. But when it comes to treatment the pendulum swings for better or for worse. For instance in the treatment of gastic and duodenal ulcers it seems that we are taking a step backwards in stating that all ulcers should be treated solely medically. Almost daily we have evidence showing that on account of such teaching late cases of carcinoma of the stomach will come to us for treatment. We have numerous cases now which we are unable to cure by means of operation. There is also an undoubted increase in the number of cases of carcinoma of the gall-bladder. It is hoped that no long continued efforts at medical cure will be tried in patients suffering from gall bladder symptoms. It was a step forward to displace the operation of cholecystostomy by that of cholecystectomy. I fear also that the use of drainages over a long period of time will help to increase the mortality from cancer. Drainage of the biliary tract is of value in assisting to obtain a diagnosis of diseases of the gall-bladder and its passageways but the test when applied to therapeusis fails. It has never been known to cure a case suffering from gallstones or obstruction of the common duct.

Finally it is a well known fact that the gall-bladder, liver, the bile passageways, the stomach, duodenum, portal system, the spleen and the lymphatics are intimately connected one with the other.

In an evaluation of the symptoms their relationship must be considered.

It is hoped that patients with gall-bladder disease will be referred to the surgeon early so that cancer can be prevented.

Unfortunately most cases of cancer of the gall-bladder come too late for relief or cure.

1738 Pine Street.

The Hypoglycemic Symptom Complex

In the opinion of Reinwein hypoglycemic symptoms in diabetic patients are easily overcome provided they are correctly diagnosed. This author has observed that a diabetic coma is much oftener assumed erroneously than a hypoglycemia. Incorrect diagnoses are unfortunately due to the fact that the physician forgets to examine a catheter specimen of urine, and the further fact that the hypoglycemic state is not very familiar to most physicians. There is also an erroneous idea prevalent that hypoglycemia begins with convulsions. As a matter of fact these are seldom seen in experimental hypoglycemia in animals. Three illustrative cases show impressively that if injection of glucose does not at once restore the patient this does not militate against the assumption of hypoglycemia. Animals of course awake very quickly after small doses of glucose, but one must also reflect that the amount of metabolism is also much smaller. In most cases intravenous glucose acts promptly, but a uniform relation between hypoglycemia—as presented in the lowering of blood sugar and in the clinical symptoms—and the amount of glucose injected is difficult to draw up, since we do not know the content of the tissues in blood sugar. If all these points are borne in mind, the recognition and treatment of hypoglycemic symptoms are not difficult, provided further that the physician remains consistent in his therapeutic management and does not shift back to insulin in a panic over a possible mistaken diagnosis. It is still too little understood that in these attacks the psychic behavior is changed, and may in fact be the chief symptom of the threatening or actual hypoglycemia. In one case cited a man on a well-established diabetic regimen was seized with diarrhea which by interfering with resorption of food upset the relation between insulin and diet, and led to violent delirium from hypoglycemia. By dividing the insulin dosage and changing the diet the patient was restored. The patient must be made to understand clearly that insulin treatment will be successful only under properly tested conditions, and that any tampering with the prearranged insulin dosage is dangerous.—*Deutsche medizinische Wochenschrift*, April 3, 1931.

Improving Public Health with Moving Pictures

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WE all note with satisfaction how of late years civic minded bodies have endeavored to improve public health by distribution of information relative to certain diseases such as tuberculosis, cancer and other public menaces. This trend of modern medical thought is noteworthy and in its development the medical film has played and will continue to play an increasingly important part. To give some idea of the extent to which the medical film has entered upon the task of informing the public in regard to preventive measures the following classification of health films now existing is presented:

Survey of Existing Health Films
compiled by
Welfare Section, Metropolitan Life Insurance Co.

The baby
- I Pre-natal Care
- II Birth Registration
- III General Care
- IV Bathing
- V Weighing and Measuring
- VI Care of Special Parts of the Body
- VII Infant Feeding

The Child
- I General Hygiene and Health Habits
- II Activities in Child Welfare
  - (a) General
  - (b) School Health Activities

The Adult
- I General Hygiene
  - (a) General
  - (b) Health Examination
  - (c) Overweight
- II Home Economics

Physical Training and Recreation
- I Corrective Exercise
- II Calisthenics
- III Athletics and Sports
  - (a) Camps and Camping
  - (b) Scouting
  - (c) Swimming
  - (d) Miscellaneous
- IV Playgrounds

Nutrition
- I General
- II Milk and Milk Products

Disease
- I Spread and Prevention of Disease
- II Cancer
- III Common Colds
- IV Diphtheria
- V Hookworm
- VI Infantile Paralysis
- VII Malaria
- VIII Smallpox
- IV Tuberculosis
- X Typhoid
- XI Venereal Disease

Safety and First Aid
- I Safety
  - (a) Child Safety
  - (b) Industrial Safety
  - (c) Fire Safety
  - (d) Street & Highway Safety
  - (e) Miscellaneous
- II First Aid
  - (a) General
  - (b) Life Saving—Resuscitation

Public Health
- I Industrial Hygiene
- II Occupational Therapy
- III P. H. Nurse and Home Care of the Sick
- IV Sanitariums and Hospitals
- V Sanitation
  - (a) Fly
  - (b) Mosquito
  - (c) Rats
  - (d) Waste Disposal
  - (e) Water Supply

Public Welfare
- I Americanization
- II Industrial Welfare
- III Community Welfare Work
- IV Foreign Welfare Work

Anatomy and Physiology
- I General
- II Digestive System
- III Blood and Circulatory System
- IV Respiratory System
- V Reproductive System
  - (a) Ear
  - (b) Eye
  - (c) Feet
  - (d) Teeth
  - (e) Voice

Biology
- I General Science
- II Reproduction

Miscellaneous

As may be inferred from looking over the very complete array of films listed in the classification given above public health films are no longer in the experimental stage. They have been extensively used and the success which their use has met with has encouraged further films of this nature. Thus throughout the length and breadth of the land children are being taught dental hygiene by means of medical films which they can comprehend far more easily than any pamphlet, no matter how simply written. Child health is being protected by health films informing the profession as well as the laity regarding the need of protection against smallpox, diphtheria and other contagious diseases. Epidemics are thus being made less frequent. In a similar manner diseases which we always have with us, such as tuberculosis and cancer, are being called to the attention of the laity, and the awakened alertness on their part is making possible early discovery and an increased percentage of cures.

The public health films mentioned above have been made available to the public in a variety of ways. In some instances they have been shown under the sponsorship of the local Board of Health as for instance in the case of a film entitled "New Ways for Old", a movie depicting the advance in medical science in respect to the prevention of diphtheria by inoculation with toxin-antitoxin. This was shown at a local theatre under the sponsorship of the Hackensack Board of Health, Hackensack, N. J.

In other instances, as, for example, in Connecticut, the State Board of Health has collected a series of health films and then through the medium of the public press has aroused interest in these health films and has stated the conditions under which the films would be loaned to responsible parties.

In Ohio, the State Department of Health has sent out a motor truck carrying a projector and a health film under the supervision of H. E. Kleinschmidt and by covering a carefully mapped out territory much constructive work has been done along the lines of preventive medicine. The so-called Healthmobile method has also been employed in the State of Georgia. In still other instances a special railway train has been turned over to the cause of improving public health. In Texas we note the following item in a San Antonio newspaper:

"The Texas Better Health Special, Dr. King said, will carry six cars, two of them devoted to displays and exhibits of all sanitary devices and equipment, while a third will be devoted to lecture purposes and the showing of motion pictures during the daytime. At night motion pictures will be shown on screens hung from the sides of the cars. Five lectures on various health subjects will be delivered in and from the train at one time, each one touching a different phase of sanitary activity, and each lasting for a period of five minutes."

In time, no doubt, the progam of every moving picture entertainment theatre will contain at least one short film on some timely health topic of local importance.

It must not be presumed from the foregoing that our American confrères have been the only ones active in this field since considerable noteworthy work has been done in England, France and other countries of Europe. Thus, we note in the "Weekly Scotsman", Edinburgh, Scotland, the following comment:

"Films are being shown dealing with maternity and child welfare, cleanliness in the home, and how certified milk is produced, together with lecture demonstrations. The Dental Board of the United Kingdom also show a film dealing with the care of the teeth."

In the "Daily Mail," at Hull, England, we find another note relative to the use of public health films:

"A cinematograph film in five parts was then shown depicting the dangers of influenza, of impure milk, of not cleaning the teeth, and why infantile diarrhoea, tuberculosis and venereal diseases should be avoided, and explaining how these troubles arise and the commonest causes of them. It showed the danger of not treating flu in its earliest stages, and the duty to society of everyone suffering from flu to take every precaution not to spread it."

Even in far off India the public health film has made its appearance; thus we note in "The Pioneer," of Allahabad, India, that

"The Punjab Demonstration Train has been on an extensive tour of rural districts on the mission of giving information relative to public health."

At Calcutta, India, "The Englishman" describes health film activities as follows:

"Dr. C. A. Bentley, Director of Public Health, said that films were in the end much more effective and much cheaper than magic lantern exhibitions. There was such a tremendous wastage in magic lantern slides. Generally they had somebody to explain to the people what the film was about. If a film was taken as it should be it really required the minimum of explanation and then only for those who could not read the captions.

Villagers were bored with American and French films and walked away but as regards Indian films they wanted them repeated. If they wanted to drive home a lesson, they had to have a film with people whom the audience recognized as their own people. They must reproduce local conditions."

The last paragraph of the above quotation gives an insight into and an idea of how universal the language of film may be made since natives who could not understand English could readily understand the picture. The remarks in the last paragraph also show that the racial element is not entirely done away with, since the audience showed a preference for films enacted by members of their own race and time.

The Value of Public Health Films

Educational health pictures may be classed in two groups: those intended for the instruction or information of the physician or surgeon and those directed to the education of the lay public, through use in the school room or by general display.

In this latter class there are again two groupings by which the pictures may roughly be divided into: those which are purely instructive and those which gild the pill of knowledge with the coating of an entertaining story. Their relative values are well gauged by Thomas C. Edwards, of the National Health Council, in an article in the *Annals of the American Academy of Political Science,* in which he says:

"The special value of the motion picture in health education is that it can make a powerful emotional appeal. Perhaps in nothing is human nature so steeped in indifference and inertia as in the matter of its health. Presenting the cold facts may interest some, but the facts alone are seldom enough to move the public at large to action. With the sympathetic appeal of a little human drama you may disarm indifference, evoke an active particiption and thus, overcoming inertia, sweep an audience into the will-to-do. This, of course, is what the public speaker tries to do, but the film has all the advantage, for the audience sees the thing happening—and it must be so."

From another viewpoint George A. Soper, Ph. D., managing director of the American Society for the Control of Cancer, in a personal letter writes:

"The best means of instructing the public known to us is the daily newspaper, but the moving picture ranks high, provided the pictures are good ones.

We must not suppose that the public will accept poor health films without getting a poor opinion of the organization which produces them. There is need of much better quality in moving pictures intended to interest the public on health questions. The better they are, the more convincing they are likely to be."

In that last sentence is summarized the great fault of the present informative movie. For reasons of economy, through an effort to make a small appropriation cover too much ground or purely through a lack of understanding of picture values, the health dramas are far too often inadequate to carry the interest which must precede instruction.

It cannot be contended for a moment that the medical movie should compete with the drama produced purely for entertainment. Such a production as "Ben Hur," for example, probably cost more to produce than the entire library of educational pictures, and even the minor presentations represent the investment of from $5,000 to $40,000 per thousand feet—a cost that would make the educational picture, which yields no revenue, absolutely impossible.

The educator may not rival the Hollywood director in the vastness and costliness of his stage settings. He cannot afford the use of popular stars, highly trained players and expensive camera work, but he can, and if he is to be successful, he must, present good pictoral quality, narative value and intelligent handling. In the last analysis he must make intelligence take the place of extravagance. It is vitally essential that the story should be such as will interest. It is not sufficient that it be a story. It must be an interesting story, and the greater the interest gained for the propagandist, the greater the teaching value of the production.

The most common fault in the educational production is a tendency to overload the tale with a moral, to impose propaganda upon narrative until entertainment becomes preachment and the appeal if not wholly lost at least becomes obscured. This is the chief fault of all propaganda films, whether concerned with medical education or other argument. The subject is pressed home too hard. A straight fact presentation is often to be preferred to a pseudo-drama in which fact outweighs fancy. It is at least honest and free from false pretence. It does not promise entertainment and produce only boredom which is accentuated by the expectation of entertainment.

Too great a stress cannot be laid upon the necessity for a graphic story well told. Too often the preparation of the script is entrusted to some enthusiastic but uninformed person rather than to a trained writer. The best results can accrue only when the preparation of the script is placed in the hands of a practical writer who understands the medium in which he is working and who can judge with reasonable certainty the visual appeal of the written action.

Next in importance to the story is the photographic value. A thick, cloudy picture, poorly lighted or taken from the wrong viewpoint cannot but be repellant. The propagandist cannot hope to rival his more affluent brother in the entertainment field, but he can at least emulate him in an endeavor to produce good photography, which costs but little more than indifferent work. In one sense the health movie is in rivalry with the purely entertaining picture. It purports to be a picture, and it should possess pictorial value.

The third factor is the acting ability of those who carry the story. It is not always possible to obtain the services of well trained players, but it is necessary, through the exercise of care, to get the best possible players for the important rôles. Unless the propagandist can carry the interest of the spectators, the lesson is nullified.

Speaking in a general way, most of the really educational pictures are those produced by persons having a commercial rather than a philanthropic interest in the subject. The product of certain insurance

companies, notably the Metropolitan Life and the John Hancock, generally have direct value because these companies have invested in results. They spend more money to more nearly approach the entertainment film, knowing that the closer they come to this standard, the more beneficial to them will be the results of their showings. It may be argued that they have more money to spend, which is beside the point. The argument is that it would be far better for the society of limited resources to spend its funds in the making of one good picture than to put the same appropriation into two or more cheaply produced pictures which will all fall short of efficiency. It is not to be denied that the education conveyed in the guise of entertainment is far more effective than the purely informative film, but it should be remembered that too great a dilution with story will be as ineffective as overloading with a moral.

As to the value of the educational drama we may again revert to Mr. Edwards' article for concrete testimony. In speaking of some of the films sponsored by the National Health Council he refers to some direct results. For example, one showing of "Working for Dear Life", produced by the Council in conjunction with the Metropolitan Life Insurance Company and designed to stimulate interest in periodic health examinations, brought about 802 requests for such examinations, all of which were traced to interest in the picture. This for a single showing, and at the time of writing the film has been shown to some 9,000 audiences with an attendance of upwards of 4,000,000 persons. In Gary, Ind., "One Scar or Many", a smallpox picture, was shown to 12,980 school children. Within a short time there had been requests for 1600 vaccinations.

An excellent concept of the health picture is contained in H. E. Kleinschmidt's excellent article in "Health Publicity," an Ohio publication, in August, 1926. It runs in part:

"A well-designed health motion picture conveys information which is scientifically sound and carefully balanced in emphasis. Who has not, after having made a public address, regretted having made an unintentional omission or a misplaced emphasis. The sequence of a good film builds up a well-rounded, harmonious concept. So continuous is the flow of related ideas that the eyes seldom wander from the screen, and thus the audience receives the whole story, balanced and compact."

In another article, one pithy paragraph stands out:

"Of the 200 or more films listed by the National Health Council, not more than a dozen can be said to be thoroughly satisfactory from the standpoints of artistry, scientific accuracy and dramatic value. Few health movies can compare in quality with the most ordinary professional films shown at the theatre. Too many enthusiastic novices, equipped only with an idea and a few meagre dollars, have, in the past, rushed into the highly technical field of cinematography, and the result has been miles of health pictures with mediocrity written all over them."

Since this was written, in the summer of 1926, there has been a notable improvement in quality, but too great an enthusiasm, combined with too little money, is still resulting in the production of much material that is not only of small help but often is hurtful in creating in the public mind the impression that the health movies are boresome and to be avoided. One or two programs of indifferent value may serve to keep the spectator from the later showing of a really meritorious picture. A distaste is formed which persists.

The need for accuracy, stressed in the foregoing, is a point too often overlooked, and can best be illustrated by a happening in the earlier days of the health picture. The Edison Company presented each year, in conjunction with the Society for the Prevention of Tuberculosis, a one-reel health picture with sufficient dramatic interest to be included in its regular program of offerings for theatrical showing. It was produced about the time the Christmas seals went on sale, and was intended to aid that sale. In an early scene a physician was supposed to take his patient's temperature and pronounce her gravely ill. But before taking a reading he carefully shook down the column of mercury, and even the lay spectators detected the inaccuracy. The value of the story was somewhat detracted from through the destruction of illusion. Pictures produced directly under the supervision of some competent person avoid these glaring errors, but many small inaccuracies creep into the carelessly produced pictures, at least weakening, if not defeating, the ends aimed at.

The health drama is of great importance when it approaches the juvenile and the unlettered minds. It drives home the lesson through the aid of the story, and forms a more lasting impression than pure fact, no matter how well presented. But there are subjects which do not lend themselves readily to dramatization, or which would require too much dramatic action to carry the lesson. They must be presented as fact and not in fiction form. Even here it is possible to escape the dry presentation through the use of animation or cartoon work. "Animation" is used as a generic term for both processes, but strictly speaking, animation differs from cartoon in that it is possible to introduce effects not possible with drawing alone. It is possible, for example, to show in a series of cartoons the gradual progress of pyorrhea. It would be more graphic to "animate" a model of the teeth and gums, by means of trick photography. The same result would be arrived at, but the animation would be more graphic and, therefore, more convincing than the cartoon.

When the subject requires straight fact presentation, the utmost care should be exercised to array these facts in the exact order of progression that will most clearly and graphically tell the story. It is far from sufficient that all material be included in the reel. It must be so arranged as to develop the story as carefully as the movement of events in a dramatic progression, and the various pictorial examples should be connected with subtitles that tell in the most graphic expression the idea it is sought to convey. The editing of a fact film calls for even greater care and generally for greater skill than the production of the health drama since interest must be engaged without the aid of narrative. Many health films could be given double their present value through more intelligent rearrangement and editing.

These pictures are practically all distributed for use in schools, churches and extension institutions. In addition there are some few theatrical films, generally treating of venereal disease in a sensational way, usually exhibited to audiences of one sex, though the same picture may be shown to men only at stated times and to women at others. As a rule these pictures have little educational value and are offered as "health" pictures merely in an effort to offset censorship and police interference. There are a few notable exceptions, but in general the health picture to which an admission is charged is not a sincere effort to spread the gospel of health but rather a sordid and generally tawdry effort to capitalize a respectable movement for personal gain.

During the war a number of pictures were made for use in training camps, where they did accomplish some good. Later these were turned over to pri-

vate enterprise for general showing. In order to attract paying audiences, the advertising was somewhat sensational and the success of these well-intentioned pictures led to the production of more vivid stories in which the lesson was entirely lost in the profusion of sensation.

While the pictures were still in their one and two-reel stages the theatrical producers frequently presented health pictures, generally dealing with tuberculosis, sanitation or preventive measures. Usually these were subsidized by some organization interested in the spread of knowledge on some particular branch, or at least sponsored as an advertising aid.

With the coming of the longer features, in five reels or more, the health pictures have practically disappeared from the programs of releases by the commercial companies, and the only approach to the regular theatre patron is through the "trailer", or short length of 200 feet or less, which sometimes will be included in a picture program at the request of the local health officers. However, in the news reels and "reviews" there are often listed brief lengths dealing with micro-photography, physiology and physical culture. Some of these are later converted into health releases, or at least offered in this guise, though it is seldom that these have any real teaching value.

Distribution of popular health subjects, as has been briefly mentioned heretofore, has been made chiefly through State Health Departments, through universities, societies, insurance companies and a few commercial agencies. Generally only the latter charge an appreciable rental. Most of the distributors, working for public welfare, require only that the transportation charges be paid on film loaned. Others exact a purely nominal rental to pay the costs of handling. Some agencies work is self-contained, supplying not only the film but the projector and projectionist, working through the local health officers on a regularly planned route.

Eugenics offers a long list of films and child hygiene and school health cover even more ground, with a less pronounced advertising angle, though advertising cannot be objected to if it makes possible the production of a better film. Medical subjects, naturally, are largely limited to preventive measures rather than cures, with good stress upon first aid measures. The value of exercise and physical culture is well covered, and in the latter class are to be found many reels which are merely reissues of the news reels and views, already noted, collected into longer lengths and given new titles. Many of these have no real instruction value, but there are others specially prepared to carry instruction as well as scenic interest.

Apparently the greatest good is achieved through those films dealing with preventive measures, the avoidance of infections, first aid, safety and child welfare. There is a growing use of portable and fixed projectors in the schools, and with properly selected programs great good may be accomplished.

One handicap to the greater use of health instruction in the schools is the lack of a systematic course. These pictures, coming from scores of sources, cannot be arranged in a well ordered array of facts, but the instructor must make his own selections from such sources as he may, and be guided largely by his past experience unless he is able to pre-view the subjects he contemplates using. A title may read well, only to disappoint when thrown on the screen. Moreover, there is an embarrassment of riches in some classifications and a paucity in others. Until this hit-or-miss system can be replaced by courses of known value, the progress of the health picture will be comparatively slow, save where it is in the hands of State officials who are able to give the time and attention required to make proper selection. Here, of course, the personal equation figures, but by averaging up the State programs, a reasonably good selection may be arrived at.

The United States Public Health service, the various State Boards of Health, the Metropolitan Insurance Company, and all other workers in the fields of public health certainly deserve to be highly commended upon the progressiveness they have shown in recognizing at an early date (and far in advance of the body of the medical profession) the truly tremendous value that the motion picture film has to them in their enterprise of enlightenment. Public health workers are indeed the vanguard of the medical profession and the incalculable good which they do redounds to their everlasting glory. Disease in general is in a large measure due to error and as such it must inevitably recede before the rising tide of education. The fact that these workers have employed the most potent implement of modern education well bespeaks the future of preventive medicine.

139 East 36th Street.

Too Much Health Advice

"Our readers are probably familiar with the story of Mrs. Shelley's 'Frankenstein'—a student who took pieces from cemeteries and dissecting-rooms and fashioned from them a monster in the form of a man. Once the thing was made, however, it could not be controlled, and turned upon its maker and destroyed him.

"The story strangely reminds us of the 'Frankenstein monster' that is being created out of unrelated bits of over-emphasized health lore.

"Without doubt this present interest in health and hygiene is most commendable and promises much good. It is however, being carried to extremes, and is getting to be a burden.

"The housewife is caught in a maze of vitamins, calories, carbohydrates, and 'acid-producing' foods, and does not know which way to turn. She is up against the problem of fattening the children, 'slenderizing' herself, and satisfying the brute that comes home hungry and tired in the evening, and it has just about got her down.

"Raising a baby in these days is a big undertaking, and one frequently hears a mother say that she does not see how she could possibly take care of two, when one takes her whole time. As a result we are killing the goose that laid the golden eggs.

"In order to raise a few children well we are making such a fuss about it that most of the children are being raised by folks who have no standards whatever. If a mother might be expected to do all of the things that some of the health cranks are advocating, she would need to have a Ph.D degree from the university, but not many of the Ph.D's have children, so that suggestion doesn't seem to help a bit.

"After all, we doubt if there is anything so unhealthful, mentally as well as physically, as excessive attention to self.

"This health business is getting to be a 'racket,' and we are much in need of folks brave enough to break through a lot of these silly rules and insist that there are other things worth while, and that one can be healthy without making it his life's work.

"Common sense and a fair appreciation of what is really essential is about all that is necessary."

—*Jour. of the Indiana State Med. Assn.*

German Gas Masks for Protection Against Carbon Monoxide

The Degea carbon monoxide mask is described in this article. The catalyzer consists of a mixture of copper oxide and manganese dioxide, as well as a small quantity of calcium carbide, which generates acetylene, thereby acting as a warning agent when the catalyzer becomes ineffective through excess moisture. The mask is effective against given amounts of phosgene, chlorine, ammonia, sulphur dioxide, hydrocyanic acid and chloropicrin. —*J. Indust. Hyg.*, 1930, 12: 167.

Prenatal Syphilis: Prevention, Diagnosis and Treatment*

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VENEREAL diseases as a whole and syphilis, particularly congenital syphilis, require the greatest attention of Health officers, physicians and other agencies interested in the control of public health throughout the world.

What greater calamity can occur to anyone than to be stamped from birth with the marks of this disease, which not only affects the individual but which, if not properly treated, may be passed on to others.

We must first consider the prevalence of prenatal syphilis. The following statistics were obtained from cases treated at the Sloane Hospital for Women during the years 1922 to 1928 inclusive. During this period 9,995 women were delivered, and of these 355 had positive Wassermann reactions antepartum, giving a percentage incidence of maternal syphilis in the clinic of 3.6 per cent. These 355 patients represented 484 pregnancies as 100 patients were readmitted for a second, and some for a third pregnancy, for a total of 129 deliveries, thus giving a percentage incidence of 4.8 per cent per delivery. These figures are extremely low in comparison with figures published by other clinics, and the explanation is not easy. This is especially true when one considers the fact that our antepartum registration census continuously shows approximately 30 per cent of colored patients. Parker gives an average percentage incidence of 8.3 per cent. This figure was obtained by taking an average of the reports of fifteen clinics scattered throughout the United States. Other percentage incidence figures are as follows:

The Johns Hopkins Hospital Clinic	11.2%
The Long Island College Hospital	6.0%
The Ann Arbor Hospital Clinic	6.2%
The Detroit Board of Health	13.1%
The Royal Maternity Hospital of Edinburgh	6.5%
The Lying-In Hospital of the University of Copenhagen	5.5%

There is no great discrepancy in these figures except in those of Johns Hopkins Hospital Clinic and the Detroit Board of Health. These, as Williams has pointed out, can be easily explained by the much higher incidence of syphilis in colored people than in white. Our group at Sloane consisted of 62½% colored and 37½% white.

Many theories have, from time to time, been propounded by various authors as to the means by which the spirochete is transmitted to the foetus. One theory which was generally accepted prior to the discovery of the infecting organism, and the various serologic reactions, deserves mention, as it led to the formulation of Colles's Law—namely, "that an apparently healthy woman might give birth to a syphilitic child and be able to nurse it with impunity, whereas it would certainly infect another woman." This theory presupposed that the syphilitic virus could be carried by the spermatozoon directly to the ovum and infect it at the time of conception. As long as the spirochete remained unknown this did not seem improbable. However, in 1907 Bab pointed out that the spirochete is three times as long as the head of the spermatozoon and it seemed unlikely that the former could enter the ovum with the latter, unless some intermediate sporular form exists which has as yet been undiscovered. Likewise the use of the Wassermann test shows that these apparently healthy mothers almost universally give strongly positive reactions.

The theory of direct paternal infection of the foetus must therefore be discarded. It must be noted, however, that Williams believes that it may occur in rare instances, and that the mother will or will not contract the disease according to whether the father does or does not present actively infectious lesions at the time of coitus.

Infection of the foetus by the mother through the placental circulation is the only means with which we need concern ourselves. As Gammeltoft expresses it: "The maternal transplacentary transmission is the only way of transmission or practically the only way of any importance. Those instances of congenital syphilis in which the mother did not subsequently prove to be syphilitic are too rare to alter our viewpoint."

Maternal infection can, of course, occur at any time prior to, or during, pregnancy. However, divergent views are held as to the duration of pregnancy when foetal infection takes place.

It was formerly believed that the foetus of a mother who was syphilitic at the time of conception was infected during the first four months of pregnancy. Now the views of Trinchese and Thomsen would seem to point out that foetal infection usually takes place after the fourth or fifth month. These views would explain the fact that, contrary to popular belief, syphilis rarely causes abortion.

Williams and others have shown that untreated maternal syphilis is the etiological factor in 40 per cent of all stillborn premature infants. At Sloane 51 per cent of the pregnancies occurring in untreated mothers ended disastrously with the delivery of stillborn syphilitic infants.

The foetus may escape infection in some cases in which the mother was infected during pregnancy but we must consider the offspring of all syphilitic mothers to be syphilitic, until proven otherwise. No satisfactory explanation has as yet been made for those paradoxical cases in which a syphilitic mother will, in alternate pregnancies, have syphilitic and healthy infants. One theory is that syphilitic infection of the mother is latent but undergoes exacerbation during those pregnancies which terminate in syphilitic offspring. Another theory is that the continuous casting off of particles of placental tissue into the maternal circulation develops an active immunity to the spirochete and that these antibodies are passed on to the foetus through the placental circulation.

The classical pathological syphilitic lesions of the foetus are only seen today in the offspring of untreated mothers. It would appear that comparatively little treatment is sufficient to prevent their development, or perhaps the race as a whole is developing an immunity to the disease. The lesions are many and varied and are characteristic. The foetus is undersized and poorly

* Lecture delivered to a special meeting of physicians at the Bellevue-Yorkville Health Demonstration Centre, Nov. 13, 1930, under the auspices of the American Social Hygiene Association, The New York Tuberculosis and Health Association and the New York City Department of Health.

developed. The skin is drawn, and the subcutaneous fat either lacking or present in small amounts. In the living child, the skin is brittle and has a tendency to crack and macerate. This is especially true of the palms of the hands and the soles of the feet. Typical secondary rashes are seen in some cases and occasionally pemphigoid eruptions occur. This is especially true in the genital region. The changes in the internal organs are the result of hypertrophic cirrhosis and are most commonly met with in the liver, spleen and pancreas. The lung lesions, chiefly the pneumonia alba of Virchow, are extremely rare in our experience. On gross examination the lungs are enlarged, pale, firm in appearance, and scarcely, or do not, float in water. On microscopical examination, an enormous increase in the interalveolar connective tissue is seen with a corresponding compression of the alveoli. Areas of perivascular round-celled infiltration are present.

The cirrhotic processes in the liver lead to an enormous increase in size, the weight increasing from 1/30th of the infant's body weight to 1/10th or 1/8th. Microscopical examination shows an enormous increase of the interlobular connective tissue. Scattered throughout are areas of round-celled infiltration.

The spleen undergoes similar changes and may increase to two or three times its normal size.

The pancreas, in our experience, is one of the most frequently affected organs, and here the interparenchymatous connective tissue increase assumes great proportions. There is a corresponding decrease of the parenchyma and the organ as a whole presents a firm fibrotic appearance and is little, if any, increased in size.

Lymphatic tissue throughout the body is increased in amount and the mesenteric lymph nodes are markedly enlarged.

The organisms are easily demonstrated in the tissues by suitable stains. This is especially true in the organs of macerated foetuses, and is correspondingly more difficult in the organs of infants who have been born alive. Judging from the vast numbers of organisms present in some cases, it would appear that the foetus is subjected to a profound spirochetal bacteriemia sometimes during pregnancy. Tissier and Girould state that organisms are rarely found in the tissues prior to the sixth month of pregnancy, but our experience has been that they are relatively common after the fifth month.

The bone changes, or rather the diaphyseo-epiphyseal changes in the long bones are charteristic but do not commonly occur in macerated foetuses or in infants dying shortly after birth. McLean concurs with us in this finding, and believes it is due to the severity of the infection which kills before, or shortly after birth, and before these changes have time to occur. From birth on they are common, as he has so well shown.

The characteristic changes grossly are a widening and an irregularity of the diaphyseo-epiphyseal line which also assumes a yellow color due to fatty degenerative processes. Normally, this line appears as a white, slightly curved area from a half to one millimeter in thickness. In syphilis it is converted into an area two, three or more millimeters in thickness. This change is the result of an osteochrondritis which destroys the normally sharply-marked zone of preliminary calcification between cartilege and bone and replaces it with irregular areas of bone formation, calcification, leucocytic and round-celled infiltration. Other changes are a periostitis and, in later stages, an osteomyelitis. These changes are not of interest to the pathologist alone but, as McLean was shown, through the use of *x*-rays, they form an extremely accurate means of diagnosis. Contrary to popular belief, he has shown that the lower end of the femur is not the bone most commonly affected. In McLean's series the tibia was affected in 96.8 per cent; the ulna in 96.7 per cent; the radius in 91.3 per cent; the femur in 79.1 per cent; and the humerus in 73.8 per cent.

The placenta likewise undergoes characteristic changes and these changes are of value in determining the presence of a prenatal syphilitic infection. Williams and Beck lay great stress on the importance of placental examinations and are able, in the majority of instances, to make a diagnosis by this alone. A negative examination must not, however, be construed to rule out the presence of a syphilitic infection. Our experience has been that typical placental lesions are rare, except in the placentae of macerated foetuses, or in the case of infants dying shortly after birth. There may be, however, highly suggestive changes, such as enlarged villi and decreased vascularity. The typical syphilitic placenta presents a grayish, greasy appearance, and is always relatively and generally actually increased in size. The weight ratio between placenta and child is increased from one-sixth to one-fourth of the body weight or larger. On cut section, it presents a firm, gray, greasy appearance, and its relative avascularity is immediately noted. In common parlance, it has the appearance of bacon rind. Microscopically, these changes are seen to be due to a marked proliferation of the stroma cells. The blood vessels likewise show endarterial changes with a marked decrease in the number of blood vessels. Many of the villi, in advanced cases, are avascular. Perivascular round-celled infiltrations are also seen. Pictures of all gradations from the normal to the above are frequently met with, and it is in these atypical cases that the difficulties of diagnosis are encountered. One condition, especially, may prove confusing. I refer to fibrosis occurring in the placenta of a premature, macerated foetus, as this condition is also frequently seen in conjunction with congenital syphilis. White infarcts of the placenta have been held by some writers to be indicative of syphilis. Other writers believe they are the cause of eclampsia. One author believes they are the cause of congenital anomalies. We cannot believe that they are of much pathological significance as the great majority of full-term placentae show one or more infarcted areas. We do not know the cause but assume it to be one of the several degenerative processes which normally occur in placentae after the sixth month. Browne stresses the importance of miscroscopical examination of the umbilical cord. He states that the section should be cut as close to the foetal end as possible. The characteristic change is a round-celled infiltration around and in the walls of the umbilical vein. Spirochetes may be demonstrated in the tunica interna by suitable stains.

There are many difficulties in the way of making a diagnosis of maternal syphilis. The infrequency with which primary lesions are seen in the female is well-known. The genital lesions, when encountered during pregnancy, often assume large and atypical forms on account of the great increase in vascularity of the parts. In others, they are small and almost microscopic in character. Dark field examination should be made of material obtained from any suspicious area; the finding of spirochetes, of course, clinches the diagnosis.

Secondary lesions are likewise comparatively rarely seen or are of such slight degree as to escape notice.

The various stigmata of congenital syphilis are more commonly met with, but the majority of these patients are known syphilitics and have already had some form of treatment.

The history likewise is of little value. The primary

and secondary lesions of syphilis in the female are less marked than in the male. The average female pays little attention to a slight increase in moisture about the genitals or to some slight discomfort thereabouts. The secondary rashes may have been poorly developed and of an evanescent character, thereby passing unnoticed, and tertiary lesions may not have developed. The history of frequent abortions has for generations past been significant of maternal syphilis. However, this is not the case today, and means should be taken to put an end to this fallacious teaching. There are many commoner causes of miscarriage, and not the least of these is the criminal abortionist. Huntington ascribes the cause of many abortions to actual changes in the male or female element, and his researches would, in many instances, seem to bear this out. Our experiences do not coincide with Browne's, "that in 70% of the primiparae a history of clinical evidence of syphilis could be obtained, and that this is true in 30% of multiparae," or with Gammeltoft "that a positive history or clinical evidence was obtained in 56.6%."

Our experience is that the positive report of the routine Wassermann taken on admission to the antepartum clinic is, in the vast majority of instances, the first indication to the obstetrician of maternal syphilis. I believe that we can safely assume that a positive Wassermann reaction is indicative of syphilis but a negative Wassermann report cannot be relied upon. In Gammeltoft's series of 2,200 cases, the Wassermann failed in only four instances, or 0.17%.

The Wassermann reaction of the infant's blood is not reliable during the early days of life; likewise the Wassermann reaction of the cord blood obtained at delivery is of little value. However, infants with strongly positive reactions, born of mothers with strongly positive reactions, must be considered syphilitic and treatment started as soon as possible. All infants of syphilitic mothers should have Wassermanns taken at frequent intervals during the first year of life, and should be looked upon with suspicion until puberty or after. No person should be said to be syphilis—free unless the serological results of at least one examination of the spinal fluid are negative.

The treatment of syphilis to-day is, as a rule, carried out along accepted lines with courses of injections of salvarsan or one of its derivatives, alternating with courses of mercury or bismuth, and followed by suitable rest periods. The term "intensive treatment" is not an especially good one for use during pregnancy. Careful watch must be kept for untoward reactions following treatment, and frequent examinations of the urine should be made for signs of nephritic irritation. The kidneys of pregnant women are carrying a heavy load and a salvarsan nephritis is more apt to occur than in women in the non-pregnant state. Treatment must be stopped immediately on the development of such a condition, and the patient hospitalized. The intravenous use of sodium thiosulphate is of value in cases with severe toxic symptoms, and in those which show evidence of liver damage. Williams has shown that syphilis during pregnancy is especially susceptible to treatment. We believe that our chief object of treatment during this period is rather to secure a healthy offspring than to cure the mother. This can best be brought about by beginning treatment as early in pregnancy as possible. The time factor, or duration of pregnancy when treatment is started, is of vital importance. Beck, Williams and others have shown that treatment must be started before the sixth month to be effective. Our problem is, therefore, not so much how to treat the patient, but how to start treatment as nearly in pregnancy as possible, and this narrows down to the problem of how we can get patients to register in our obstetrical clinics as soon as they know they are pregnant.

The handling of the syphilitic, pregnant woman from the standpoint of the clinic or hospital administration presents many difficulties. Should they be treated by the syphilologist or the obstetrician, or both working together in close cooperation? We must also consider the treatment, and follow-up care of the infant, in which the pediatrician is necessarily concerned. We are fortunate in having, at the Sloane Hospital for Women, a solution of these problems in that all the departments are grouped together under one roof and so can cooperate and each do its part.

Our clinic routine for handling these cases is as follows: On admission to the antepartum clinic each patient has a complete history taken, and is asked specifically if she has, or has had, any venereal disease, including syphilis. A complete physical examination is made, and the pelvis measured and typed. A blood Wassermann test is taken. If this is positive, the patient is immediately referred to the skin department, and treatment started. The importance of being regular in her clinic attendance is stressed, and a social service worker visits her if she be dilatory. In the meantime, she attends the regular antepartum clinic and her appointments there are made to coincide with her visits to the skin clinic. A social worker makes at least one home visit, and attempts to persuade the husband to have his Wassermann taken, as well as to persuade the mother to bring her other children, if there are any, to the clinic for the same purpose. I would like to say here that the question of the husband, in congenital syphilis, is one of the most difficult problems that we have to deal with to-day. We have extremely good means for getting the mother to the hospital, and looking after her; she knows she is pregnant, and in many cases she knows she will not be accepted in the clinic unless she does come in early in pregnancy, but we have almost 100% failure in getting the husbands to attend. Really, I do not see, in the long run, much use of treating the woman when she is more or less open to continuous reinfection from her husband.

A specimen of blood for a cord Wassermann is taken at delivery, and the blood Wassermann of the baby on the tenth day of life. If positive, treatment is instituted while the child is in the hospital, and is continued on discharge. If negative, the mother is asked to bring the baby to the clinic when six weeks old, and another Wassermann specimen is taken. All babies of syphilitic mothers are followed for one year in our clinic, and then they go to the pediatric clinic, where they are followed for a further year. All babies of syphilitic mothers are followed for one year. Every placenta is submitted to pathological examination.

Now what are the results of treating these cases? Our group of 355 patients consisted of 222 colored (62.5%), and 133 white (37.5%). All but 35 patients, who were emergency admissions, had had some form of antiluetic treatment prior to delivery. There were 389 (80.3%) delivered at term, and 74 (19.7%) prematurely.

Among the 389 full-term infants, there were 9 (2.3%) stillbirths, and 16 (4.1%) infant deaths. Among the viable prematures, there were 19 (25.6%) stillbirths, and 10 (13.5%) infant deaths.

In addition, during this six year period, there were 20, or 4.1%, terminations of pregnancies of less than 28 weeks' duration. There were two living infants among this group.

Now, I have here a detailed study of the causes of

death, which, in the great majority of cases, were substantiated by autopsy findings.

Term stillbirths numbered 8. These are stillbirths, of treated mothers:

1 Intrauterine asphyxia, due to cord about the neck. There was no evidence of congenital syphilis in this child, although the mother had previously been an emergency admission, with pregnancy terminating at 28 weeks in a macerated syphilitic foetus. She was a white woman.
1 Fracture of the neck. This was a breech delivery. There was no evidence of congenital syphilis. She was a black woman.
1 Laceration of dura. Congenital syphilis. Black.
2 Macerated foetuses. No evidence of congenital syphilis. Black.
2 Macerated foetuses. Congenital Syphilis. Black.
1 Cause of death unknown. There was no evidence of congenital syphilis, but the placenta was syphilitic.

There was one emergency admission of congenital syphilis; black. The mother was untreated.

Term deaths numbered 13. Mother treated.

1 Bronchopneumonia. Congenital syphilis. Congenital malformation of kidneys and uterus. White.
1 Bronchopneumonia. No evidence of syphilis. Black.
3 Bronchopneumonia at two months. All had congenital syphilis. Two white; one black.
1 Diaphragmatic hernia. Congenital syphilis. Twin pregnancy; other infant alive, also had congenital syphilis. Black.
1 Congenital defect of intestine. No evidence of congenital syphilis. Black.
1 Haemorrhagic disease of the newborn. No evidence of congenital syphilis. Black.
2 Twins. Hemolytic streptococcus bacteriemia. No evidence of congenital syphilis. Black.
1 Cerebral pachymeningitis. Congenital syphilis. White.
1 Laceration of dura. Congenital malformation of heart. No evidence of congenital syphilis. White.
1 Congenital syphilis. (No autopsy but Wassermann positive.) Black.

There was an emergency admission—mother untreated. Congenital syphilis. Black.

The premature (viable) stillbirths numbered 10. Mothers treated.

1 Intrauterine asphyxia (placenta previa). Congenital syphilis. White.
1 Intrauterine asphyxia. (Cord about the neck). Congenital syphilis. Black.
1 Intracranial haemorrhage. Congenital syphilis. Black.
7 Macerated foetuses. No evidence of congenital syphilis. Four black; three white.

Emergency admissions numbered 9. Mothers untreated.

8 Macerated foetuses. All showing evidences of congenital syphilis. Seven black; one white.
1 Congenital syphilis. Black.

Premature (viable) deaths numbered 8. Mothers treated.

1 Prematurity. No evidence of congenital syphilis. Black.
1 Bronchopneumonia. Congenital syphilis. White.
2 Bronchopneumonia. No evidence of congenital syphilis. One black; one white.
1 Intracranial haemorrhage. No evidence of congenital syphilis. Black.
1 Death at birth. Mother eclamptic. Black.
1 No cause of death found. No evidence of congenital syphilis. Black.
1 Congenital syphilis. Black.

There were two emergency admissions. Mothers untreated.

1 Congenital syphilis. Black.
1 Prematurity. Congenital syphilis. White.

The non-viable prematures numbered 14. Mothers treated.

2 Macerated foetuses. Congenital syphilis. Black.
4. Macerated foetuses. No evidence of congenital syphilis. Black.
3 Congenital syphilis. One black; two white.
2 Incomplete abortions.
1 Therapeutic abortion. Indication: salvarsan nephritis.
1 Therapeutic abortion: Indication: uterine fibromyomata.
1 Ectopic gestation.

There were four emergency admissions; mothers untreated.

3 Macerated foetuses. Congenital syphilis. Two black; one white.
1 Incomplete abortion.

It should be noted that included in this group were two living children, one of whom died, at the age of 43 days, of bronchopneumonia and congenital syphilis. The other child is living but, unfortunately, its Wassermann reaction was not recorded. These were both black children.

It will be seen in summarizing these lists that congenital syphilis was either the actual or contributory cause of death in 23 (5.1%) cases, among infants of mothers who had had some form of antiluetic treatment previously. The mortality from congenital syphilis among infants of untreated mothers, or emergency cases, is appalling, being 18, or 51.4%.

There were 354 living infants born to syphilitic mothers who had been treated during their antepartum period. Of these, 145 infants showed no evidence of congenital syphilis and had negative Wassermann reactions; 149 had congenital syphilis as shown by positive Wassermann reactions, and 51 infants were not brought back to the clinic, or were lost track of. Nine infants had Wassermann tests taken, but the results were, unfortunately, either lost or the blood specimen was anticomplementary. In addition there were 39 living infants with negative Wassermann reactions (and one premature infant, who died) born to mothers in whom the Wassermann reaction had been positive during a previous pregnancy, and in whom treatment had proved adequate.

The percentage results are as follows:

Infants with negative Wassermann reaction	37%
Infants with positive Wassermann reaction	38%
Infants lost track of, or Wassermann results lost, or blood anticomplementary	15%
Normal infants of normal mothers who had a positive Wassermann reaction during a previous pregnancy	10%

The percentage results of the series of emergency admissions are misleading, unless one bears in mind the mortality rate due to congenital syphilis of 51.4%. They are as follows:

Infants with negative Wassermann reaction	7, or 43.7%

Infants with positive Wassermann reactions .....8, or 50%
Infants lost track of, or Wassermann results lost, or blood anticomplementary .....1, or 6.3%

These figures would seem to prove that the great rôle which antisyphilitic treatment plays during pregnancy is its ability to lower fetal mortality and, in a certain percentage of cases, to effect a fetal and maternal cure.

Unfortunately we were not able accurately to determine the amount of treatment each case was given in relation to the duration of her pregnancy, so we are not able to show the extreme importance of the time factor in treatment.

Williams reports that only 6.7% of the children of women who had received adequate treatment manifested any signs of syphilis. Beck states that 84% of women receiving six or more injections of arsphenamine gave birth to living infants which showed no evidence of syphilis.

The prevention of congenital syphilis is, by far, the most difficult problem in connection with the disease to solve satisfactorily. No practical solution has as yet been evolved, nor will it ever be, until the trend of public opinion has been changed from its consideration of syphilis as an entirely venereal disease, to considering it much in the same light as tuberculosis. Public health education has done much in this connection, but as yet no intensive educational campaigns, such as are carried out in connection with tuberculosis, have been made.

Likewise, little has been done from a legal point of view either to prevent its spread or to control those who are in the highly infective stage.

We believe that an intensive educational campaign should be instituted. That the general public should be informed as to prevalence, modes of infection, cause, progress, results and terminations of the disease. In this connection, lectures could be instituted in the high schools and colleges with much benefit.

We believe that legislative measures should be taken to prevent the issuance of a marriage license without negative serological examinations of both parties, or in the case of old syphilitics, a certificate from the Board of Health stating that the patient should be considered cured.

In closing, we would like to read several paragraphs from Gammeltoft describing how these problems have been dealt with in Denmark.

The Danish law contains the following paragraphs:

Everybody who knows or surmises himself or herself to suffer from venereal disease and, notwithstanding, indulges in sexual intercourse, is liable to prosecution; this applies to married as well as non-married persons.

Any person who knows himself to suffer from venereal disease must submit to treatment for it. Failure to do so is punishable.

Everyone, rich or poor, is entitled to free treatment for venereal disease; this treatment is given in hospitals and in the clinics throughout the country in addition thereto. Copenhagen has twelve minor clinics under the supervision of recognized specialists, where ambulant treatment is given.

These smaller clinics are a great asset, as they are established in private residences, and thus assure discreet treatment.

If a patient refuses to submit to treatment, or fails to appear for further treatment, the physician in charge must see to it that the police department requests this person to receive the necessary treatment. If necessary, the patient can be interned in a hospital for treatment; but this is seldom necessary.

These forcible measures are likewise applied to persons whose conduct is such as to involve the danger of infecting others. And it is the duty of the physician to make the patient acquainted with the provisions of the law.

And, of course, the law forbids a syphilitic baby to be suckled by anybody but its own mother. If a nurse knows or suspects herself to have syphilis, and still acts as wet nurse to another's child, she is liable to punishment.

Thus the law rules that all venereal patients must have themselves treated by a licensed physician and not by a quack. The requirement of a health certificate in marriage is likewise a precaution against the introduction of syphilis in married life. For the sake of completeness, I may add that Denmark has no authorized prostitution.

These rules are aimed at syphilis in general. I shall briefly outline the development of our fight against congenital syphilis.

The venereal clinics consistently and continuously point out to the women patients how important it is that they return for treatment in case of pregnancy; and the treatment during pregnancy is the most intensive possible.

In the prenatal clinic, which is associated with the lying-in department of the hospital, we always watch very closely for syphilis, and we try to discover the cases of latent syphilis by means of the Wassermann reaction.

In the case of a syphilitic child we try to keep the child and mother together and treat both at the same time.

But this can not always be done, and then the question arises: Where can we place these children?

The Stockholm physician Welander was the first to tackle this question when he founded a special asylum for these children. And, thanks to Professor Ehlers, such an asylum was established in Copenhagen in 1916. At first this home could accommodate 52 patients; but it has progressed and extended. The homes were built and equipped by private donations; state and municipal governments contribute to their maintenance and working expenses.

Denmark has attained that stage in its fight against congenital syphilis where this disease will soon become a rare occurrence, and this fact is chiefly due to the small size of the country. It is much easier to watch the individuals in a small country than it is in a large country, but even so, the large countries certainly ought to try to solve this problem along the same lines. Every effort should be made to educate the public on this subject, and to tear asunder that veil of mystery which envelops venereal diseases.

The Danish Society for the Eradication of Venereal Diseases has done a great pioneering work; the appreciation it has met with in all classes is, perhaps, best illustrated by the fact that the Queen of the country is the patroness of the Welander Homes. The fight against tuberculosis, the fight against cancer, and the fight against venereal diseases are three problems which can be solved only through the cooperation of the physicians, the public and the state.

I think there is much in Gammeltoft's words that we could apply in this country with great benefit.

Discussion

Dr. A. Charles Posner: I would like to ask,

though we have as large a percentage of syphilis as any country in the world—as there is one thing I have not satisfied myself on in the statistics: do they consider a one-plus positive Wassermann as a positive Wassermann? And secondly, do they use the Wassermann test or the Kahn test? It seems, in our experience, there is a larger percentage of Kahn test positives than of Wassermann test positives.

In our statistics if we include the one-plus Wassermanns we find in 4,000 Wassermanns 17.5% positives; but if we exclude the one-plus Wassermanns we go down to 14%. Our patients run 20% colored, and 18% white; and there is a distinct difference between colored and white patients. Our average positive Wassermanns among white patients is 8%, while the average positive Wassermanns is 18.3% in colored patients.

Now there is another difference in our statistics where the patient comes to the clinic and where the patient is an emergency case. The positive Wassermanns in non-clinic cases among white patients return 10%, while in the clinic cases the percentage falls to 6% in white patients. Positive Wassermanns in colored patients who come to the clinic show 16%, while positive Wassermanns in colored patients who do not come to the clinic return 22%; so that it shows there is a difference in the individual who understands her condition and in the individual who does not care.

With regard to stillbirth statistics: 36% of our stillbirths have positive Wassermanns; 31% of our babies who died in hospital after delivery, or died within two weeks, had positive Wassermanns.

Now there is something I have been studying which has not been brought out here; and that is the question of the nationality of the individual. Do you study the question of the nationality of the individual? In Chicago among the colored they include a lot of Mexicans. Up in Harlem we don't have many Mexicans; most common are the colored Americans, although we have a few Porto Ricans. Now 19% of the colored Americans gave positive Wassermanns; in the colored that came from British West Indies we got 16%, and in the colored from Porto Rico, 14%. We have a few patients up there who came from the Virgin Islands, and originally from Denmark; and they are away down to about 10%.

There is one more point in connection with post partum infection; we find 25% of our cases that have puerperal infection have syphilis, so that syphilis itself is an important factor in post partum infection.

Dr. Coler: We do not like to consider a single plus or a two-plus as a positive Wassermann.

A lady doctor present referred to the question of compulsory notification of venereal diseases, pointing out the stringent public health regulations in this connection in Vienna.

Several questions were asked by members of the audience, and answered by the speaker, among which were the following:

Q. I got the impression that the speaker said there was very little value in cord Wassermanns, or rather, that they were done more or less routinely, but that there is very little value in them. Am I correct in my understanding of the doctor's view on this point?

A. Cord Wassermanns are done as a matter of record. If they are strongly positive—say 4-plus, we would be very suspicious of syphilis, and would watch the child even more carefully than we would ordinarily. But a negative cord Wassermann means nothing. On the other hand you may get a 4-plus Wassermann, and ten days later get a negative; it may be that some material has passed over into the child, and gives a positive reaction.

Q. Have you any record of negative infants in the first year that become positives in the second year or later?

A. Not by the charts. We watch our babies the first year, and then they go over to the pediatrician, and the records are all mixed up. The old Vanderbilt Clinic records are, unfortunately, either lost or unavailable, so that I cannot answer that question.

Q. I understood the Doctor to say that prenatal treatment, in order to be effective, must be instituted before the sixth month. Now if he had a patient beyond the sixth month of pregnancy does he treat that patient immediately or wait until after delivery?

A. We treat immediately. If we can give treatment before the sixth month, we have a very good chance of getting a negative before delivery; and you will get a live baby, syphilis-free, whereas if you do not treat, you will get a baby with syphilis or a macerated fetus.

Q. I would like to ask what form of preparation is used in the Sloane Hospital, and how much therapy is used in the ordinary case, and if any untoward results have been observed during the course of arsphenamine treatment? I know that at the College Hospital we had two cases that developed toxic symptoms; one case following a second injection of arsphenamine had lesions in the liver. In the second case there were similar conditions following the sixth injection; there might have been a slight liver lesion passed up before. We thought there might have been a direct relationship between this drug treatment on top of the liver condition. Maybe there was something in that?

A. I have seen two deaths: one was a colored woman, who never should have had the treatment. She had one dose—I think it was .5 gm. of neoarsphenamine that was used. She developed marked jaundice, and came back to the clinic; somehow or other, she was given another dose, and came back to the Sloane, and at that time she had a very marked jaundice. We immediately started sodium thiosulphate, but without success. Fortunately, we got an autopsy, and it showed a marked yellow atrophy of the liver, acute nephritis, and a condition of bronchopneumonia. I have seen two or three cases of acute nephritis. We start a course now by using .1 gm. and work up to .5 gm. of arsphenamine, giving about eight injections in a course; and then we change to bismuth or mercury, and that is given for six or eight weekly treatments, when we again change, alternating the courses in that way. In the later stage of pregnancy we use more mercury and less arsphenamine, which I think is done pretty well all over.

The Chairman, Dr. Kosmak: I think the success of their efforts must be laid to the education of the public they are trying to bring about. One point in this educational scheme is to make people regard syphilis not only as a veneral disease, but as any other infection, and the usual glamor—although it is a questionable glamor—which surrounds venereal education, is toned down with that form of public health education. These people are made to realize that while the infection may be due to some moral lapse, it must be also considered in another light.

(*Concluded on page 293*)

Medical Fees and the Workmen's Compensation Law

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WHO, in a given case, is responsible to the physician for his fee in the treatment of an injured employee? The answer to this question seems to offer difficulties to a great many physicians. In spite of the fact that the Workmen's Compensation Law has been in existence for fifteen (15) years, many physicians do not as yet completely understand their rights as set forth by that law.

Section 13 of the Workmen's Compensation Law of the State of New York is as follows:—

"TREATMENT AND CARE OF INJURED EMPLOYEES.—The employer shall promptly provide for an injured employee such medical, surgical or other attendance or treatment, nurse and hospital service, medicine, crutches and apparatus for such period as the nature of the injury or the process of recovery may require. If the employer fail to provide the same after request by the injured employee, such injured employee may do so at the expense of the employer. The employee shall not be entitled to recover any amount expended by him for such treatment or services unless he shall have requested the employer to furnish the same and the employer shall have refused or neglected to do so, or unless the nature of the injury required such treatment and services and the employer or his superintendent or foreman having knowledge of such injury shall have neglected to provide the same; nor shall any claim for medical or surgical treatment be valid and enforceable, as against such employer, unless within twenty days following the first treatment, the physician giving such treatment, furnish to the employer and the industrial commissioner a report of such injury and treatment, on a form prescribed by the industrial commissioner. The board may, however, by the unanimous vote of all the qualified members, excuse the failure to give such notice within twenty days when it finds it to be in the interest of justice to do so, and may, subject to the limitations contained in section twenty-eight of this chapter, make an award for the reasonable value of such medical or surgical treatment. All fees. . . . ."

Under this section it is evident and has been so held by judicial decision that an injured employee does not have the right to choose the physician who is to treat him. From this it follows that a physician chosen by the injured employee has no right of action for his fee against the employer in a Court of law, or before the Workmen's Compensation Board. Where an employer, having notice that an employee has been injured and having been requested by the injured employee to furnish him medical aid, fails to do so, the employee may then go for treatment to a physician of his own choice and that physician under these circumstances may enforce his claim for a fee via the Industrial Board. He has not, however, an enforceable claim against the employer in a Court of law for his fee, since no privity of agreement exists between the physician and the employer. So also has the employee the right to choose his physician when the employer makes an unreasonable choice of a physician or when the physician chosen by the employer renders inadequate or improper treatment. In these cases, prerequisite to the enforcement of a claim for his fee, a physician who is chosen directly by the employee must establish one of the above circumstances or his claim will be disallowed by the Industrial Board.

Under what circumstances, then, is the employer liable to the physician for his fee, other than in those above mentioned instances which cast a burden upon the physician and the employee to prove either the failure of the employer to render medical aid or the rendition of inadequate or improper treatment? When the employer sends an injured employee to a physician for treatment of the injury, the employer authorizes the physician to render the necessary treatment and impliedly agrees to pay the reasonable value of the same. This authorization is the important element in this relationship and its absence has caused many a physician to find himself unpaid after rendering treatment, with only a right of action against a poor employee, with the result that even if this right is enforced in a Court of law, the receipt of the fee is questionable.

A physician authorized by an employer to render treatment to an injured employee may enforce his claim for his fee in one of two ways. The first is by an action in a Court of law based on the agreement of the employer to pay a reasonable fee. Section 13 of the Workmen's Compensation Law above set forth does not bar such an action. The second is by a claim entered with the Industrial Board. In order to enforce his claim before the Industrial Board, a physician must comply with the requirements of the Workmen's Compensation Law, which states that he must, within twenty days after the rendition of the first treatment, file with the Industrial Board and the employer a report of the injury and treatment rendered, on a form prescribed by the Industrial Board, known as Form C4. Under certain circumstances the requirement of filing such report within the required period of time is waived and not enforced by the Industrial Board.

In order to avoid the necessity of proving to the Industrial Board that it is in the interest of justice to waive that requirement in a certain case, it is advisable that physicians file such reports promptly as required. It is also advisable to make reports on prescribed forms as in some instances the failure to do so has precluded an award for medical services.

Summarizing the above, the physician's first inquiry when requested by an injured employee to render treatment should be, "Were you sent here for treatment by your employer?" If the answer is in the affirmative, a request should be made for a written authorization. Such a writing precludes the possibility of fabrication on the part of the employee presenting himself for treatment and is available as evidence should the question of authorization be brought up at a later date. To further safeguard his fee, the physician should also communicate with the employer for a confirmation of the authorization. A careful record of the treatment dates and type of treatment rendered should be kept so that, if the question of reasonableness regarding the medical fee claimed is raised, the physician is better able to uphold his contention that the amount claimed is reasonable.

In addition to bearing in mind the above aspects of the treatment of injured employees within the scope of the Workmen's Compensation Law, physi-

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Cultural Medicine

The Immortal French Physician: René Théophile Laënnec*

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IN 1846, Dr. Thomas Addison wrote, "Were I to affirm that Laënnec contributed more towards the advancement of the medical art than any other single individual, either of ancient or modern times, I should probably be advancing a proposition which in the estimation of many is neither extravagant or unjust."

The medical art, which is that of physical diagnosis, was handed down to us by two men—one was Leopold Auenbrugger and the other was Théophile Laënnec. When Laënnec was born in 1781, Auenbrugger was far advanced in years and had already presented his method for the detection of diseases of the chest, namely, percussion. Laënnec's early youth was spent in the little town of his birth, Quimper, a beautiful spot in Brittany. At the age of six, he had the misfortune of losing his mother, supposedly of tuberculosis, and he and his brother, Michaud, were sent by their father to an uncle, an Abbé at Elliant, to be brought up, for the father felt unequal to the task. It may be said that Laënnec's father was one of the most pernicious influences in his life, not because he was a fundamentally bad character, but because he was thoughtless, vain, and irresponsible. He was a lawyer who felt that he should have been a poet and those who knew him said that neither was his law sound, nor his poetry sublime. The boys stayed with the priest for a year but then when Liberty, Equality, and Fraternity became the password in maddened France, the clergyman became an emigré to England and so the boys were sent by their loving father to their other uncle, Guillaume, a progressive physician who had studied in England under John Hunter and who was now a professor at the University of Nantes. The learned uncle assumed full responsibility for the educational progress of his nephews and when Laënnec was ten years old he was placed in the College of Oratory, where he was taught everything from grammar to political science, but throughout his schooling he displayed a poetical inclination much to the distress of his good uncle who wanted him to become a physician and was afraid of the hereditary poetical taint. But in 1791 his education was abruptly terminated and his college was turned into a hospital. The French Revolution was now in full sway, and following in the wake of the massive slaughter of the Reign of Terror was a trail of destruction and disease. Even the forces of nature got into the spirit of devastation for an epidemic of typhus fever broke out which killed off those who escaped from the guillotine and starvation. And so Laënnec was first introduced into the art of Hippocrates at the tender age of ten, when he became an assistant to his uncle at the Hôtel Dieu—Laënnec's job being to make bandages and dressings.

In 1793, although the confusion was still rampant, Uncle Guillaume entered both boys in a new school, the National Institute. Both boys shone brilliantly and captured all the scholastic prizes, brother Michaud outdoing Théophile considerably. When Laënnec was fourteen years old he began to think seriously about his future and decided to take up engineering. His uncle, however, would have none of this, and so, at the age of fourteen and a half with a material fortune consisting of some old clothes, and the promises of his father to defray his expenses (which never materialized), Laënnec began the study of medicine. One thing, however, he had in common with so many other great medical men, and that was his love of natural history. This trait was very marked in Jenner, and later in Koch and Lister, and especially so in Osler.

His teachers were among the best in the city of Nantes and he studied with them for five years. This does not mean that the course lasted five years. The course lasted but one year, but Laënnec could never get the money from his father to take up further studies elsewhere so that he was obliged to repeat the work five times (It is assumed that after a while he became the leading student). But all this repetition was torture to him. He was very eager to take up new courses and was desperate in his thirst for knowledge. One of his letters to his father reads, "Each moment that I lose seems to me a century." But the money never came, only letters of lofty phrases and false promises, and provoking ideas of giving up medicine and returning home.

In the Spring of 1798, Laënnec developed an illness the symptoms of which might have belonged to either tuberculosis or typhoid fever. When he recovered he had little strength and less ambition, but he returned to his studies and prepared for an examination for "Officer of Health," a title which enabled the holder to practise on the peasantry. However, Laënnec's great ambition was to study in Paris, an ambition in which his uncle greatly encouraged him, but the realization of which was retarded by the delay of paternal support. Eventually, he did get to Paris and immediately took up work in the School of Medicine. His teacher was Corvisart, the private physician to Napoleon and an excellent clinician. He also took a course under Dupuytren. His progress was rapid and he was far above the average medical student both in medical knowledge and in cultural studies. Greek to him was an educational delicacy which he studied on the side and his great desire was to read Hippocrates in the original. He was a very serious student and although he appreciated the social arts and could write verse and play the flute, he kept himself closely applied to his work. His first published work was the observation of an autopsy on a cardiac in which he noticed the association between a hardened mitral valve and a dilated ventricle, but his first real claim to fame was his study of peritonitis, which was the first satisfactory description of the disease ever written. He not only discussed symptoms and signs but showed their relation to the autopsy findings. His account was excellent and he received a great deal of praise. Nevertheless he was still penniless and in great want, so

* Read before the Medical History Club of the Long Island College of Medicine at its January meeting. The spirit of this essay is derived from the chapter on Laënnec by Victor Robinson in his "Pathfinders of Medicine," and the substance from the monograph on the subject by Gerald B. Webb.

that when the government donated prizes for students at the special schools, he eagerly competed and won first prize in medicine and in surgery. It is pitiful to note that when the day came for the awarding of the prizes, Laënnec did not have a decent suit of clothes to wear at the exercises and was obliged to borrow money to make himself presentable. Because of the monetary value of the government prizes, he became a hound for competitive examinations. Eventually, his reputation among the students was such that when it was learned that Laënnec was competing no one else would enter the contest, and so he would be asked by the committee in charge to withdraw. All of which flattered his genius greatly but in no way helped his financial status.

In the spring of 1803, Dupuytren opened a course in pathological anatomy and published a treatise with a new classification of lesions which Laënnec was to a large extent responsible for, but, Laënnec's name was not mentioned. When Laënnec read it he became infuriated with the great injustice that had been done him. His pride was irritated and his intellect was stimulated. He would retaliate! Not only would he write his own treatise but he would also give a course of lectures by himself. And all this at the age of twenty-two. And what is still more remarkable is that he did splendidly and made a grand success of his lectures. It is to be expected that under such circumstances Dupuytren would lose his ardor for his former pupil, but he recognized his ability and when he founded an anatomical society included Laënnec as a member.

Laënnec studied intensely and wrote profusely—on heart disease, on meningitis, on pneumonia. He wrote with understanding and clarity and it is said that when Osler was once asked for a good description of pneumonia he told his questioner to read Laënnec. About this time there appeared a work in Paris which threw doubt on the existence of a personal Hippocrates, maintaining that the name was a generic one. Laënnec by then had gained considerable mastery of Greek and quotation from Hippocrates had been a constant pleasure to him. He therefore felt obliged to answer back with a thesis in glory of his hero, and it was a thesis which added much to the name of Hippocrates and to the praise of its author. Laënnec's father observing the success of the thesis suggested that it be dedicated to some influential person with possible patronage in view, but the author being not only a scientist, but a righteous gentleman, dedicated it to his uncle, Guillaume. Laënnec was always known for his virtue. At the coronation of Napoleon all the well known doctors of Paris were invited and presented to the Pope. When it came to Laënnec's turn, the Pope put his hand on his head and said, jestingly, "Pius Medicus! Res Miranda."

Dupuytren and Laënnec behaved like two spoiled children throughout the year of 1803. After their early quarrel during the first part of the year had become history, they flared up again a few months later, but this time in open combat. Laënnec called Dupuytren plagiarist, and Dupuytren called him ingrate. The quarrel continued until the medical journals became tired of both of them and refused to publish replies from either.

In 1805, Laënnec felt that he needed a holiday. He had developed asthmatic attacks which were becoming more and more frequent. He packed his belongings and went back to his beloved Brittany where he gave himself up to a life of social gayety and during his vacation met a widow, a Mme. Argou, whom he married later in life. But when his asthmatic distress was relieved, he returned to Paris and plunged back into work with renewed vigor.

Before going further, let us summarize his accomplishments up to date. He was now twenty-five years of age. He had made his mark as a teacher. He was a member of the foremost medical society of France. As an anatomist he had discovered the deltoid bursa and the fibrous capsule of the liver. He was an excellent surgical operator. He had described peritonitis thoroughly. He was the first to discuss melanotic tumors. He was the editor of a medical journal and had written a recognized treatise on pathological anatomy. But all these accomplishments, remarkable as they were, were dwarfed by his studies on tuberculosis. He and Bayle, Corvisart's assistant, were the first to explain to the medical profession the pathology of tuberculosis, and incidentally, it was tuberculosis which was the cause of both their deaths—a stroke of revenge, one might say, for disclosing its secret. Bayle and Laënnec pointed out that tubercles could be found in practically every organ of the body—peritoneum, liver, lymph nodes, pleurae—but they had never seen a tubercle in bone. Eventually Laënnec did discover tubercles in the skull, ribs, and vertebrae, and it was in examining tuberculous vertebrae that he accidentally inoculated his finger. And it was Laënnec who brought out that phthisis, which had heretofore been only an obscure name covering a score of pulmonary diseases, was tuberculosis of the lungs, and from then on was termed pulmonary tuberculosis.

Laënnec, if alive to-day, would take his place among the leaders of medical thought without regard to any of his accomplishments, because of his modern view of medicine. The autopsy room was as much his place of study as the laboratory or the bedside; he was always the student looking for further knowledge and truth in medicine. When Gall's phrenological cult was becoming popular, he set out to demolish this pseudo-science by reporting on autopsies of two hundred persons' brains whose mental states he knew and showing how the pathological findings differed with what phrenologically those brains should have looked like.

In 1814, with the downfall of Napoleon, the land was overrun with the enemy armies and the inevitable associates of victory—destruction, famine, and disease—soon followed. Laënnec, with devotion to the province of his youth, gathered together all the casualties of Brittany into one hospital, organized a group of native physicians, and personally applied himself to the care of the patients. He had a poor physique—he was but five feet, three inches in height and very thin. But he was very energetic and would move among the patients with enthusiasm, bestow countless attentions, charge no fees, and sit up with suffering patients no end of nights. When peace came and readjustments were made, Laënnec's sacrifices were rewarded and he found himself gathering quite a distinguished clientele and for the first time began to taste financial independence.

There are but comparatively few people who know of Laënnec's work on tuberculosis. Still fewer know of his pathological studies. But every one in medicine knows where the stethoscope came from. Yet it was not the stethoscope which was of paramount importance, but that with it Laënnec was able to construct a definite method of diagnosis of diseases of the chest. It is true that before Laënnec, palpation and percussion had been introduced. Even the writings of Hippocrates describe thoracic sounds, but the careful examination of the chest was limited to a very select few. Auenbrugger introduced the art of percussion but it was so little known that Corvisart, when he translated Auenbrugger's writings, said that if he had so desired he could have claimed original credit for it. Corvisart was Laënnec's teacher and so Laënnec became an advocate of percussion, also. It is interesting to digress a moment to note how Corvisart became physician to Napoleon. The Emperor was

a victim of bronchitis and when he heard about Corvisart and percussion told his secretary to bring him this strange physician who diagnosed diseases of the chest by examining that part of the body and not by feeling of the pulse and looking at the tongue. As for auscultation, the custom was to apply the ear directly to the chest and under such circumstances a systematic thoracic examination was impossible. Especially so to Laënnec, who was a very modest man, of whom it is said that the blood would rush to his head so that he would hear more noises from within than from without. One day at the Necker Hospital, of which he was now chief, he started to examine a stout girl with a cardiac condition. Because of her obesity listening by ear was absolutely fruitless and Laënnec gave it up as a bad job. He walked out of the hospital and passing through a park noticed a group of children at play. They were divided into two groups, one at each end of a wooden beam; and while one group scratched and tapped, the other group listened joyfully to the sounds as they came through. Laënnec got an idea. He rushed back to the Necker, picked up a paper covered notebook, and rolled it into a cylinder. Then, to the amazement of all onlookers, he placed one end against the patient's heart and the other against his ear. He heard the cardiac sounds well and also the breath sounds, and so the "cornét de papiér" became the first stethoscope. He used it like a child with a new toy, but a most valuable one. His were epoch making researches and the results gave us auscultation. He was the first to describe egophony, which he had elicited in a case of pleurisy. In a tuberculous patient he detected the Hippocratic sign of pneumohydrothorax and called it succussion. He was the first to elicit pectoriloquy—a sign which he had discovered in a tuberculous patient, and so many physicians came to hear this sign that the patient became a miniature medical center. Eventually the cavity cleared up and the patient lost her claim to fame. After a while Laënnec found the rolling up of paper cylinders to be a rather awkward procedure and constructed a solid stethoscope entirely of wood. This instrument allowed the heart sounds to come through but could not be used for pectoriloquy. He then put in a central canal. His final instruments had the canal enlarged at the chest end so that he could better hear the râle, a term which he introduced. And the whole method he called mediate auscultation, to distinguish it from immediate. The word auscultation, itself, was suggested by someone as an expression descriptive of the Hippocratic method of examination.

We who have come to know the stethoscope as the indispensable instrument of the physician will be greatly surprised to learn how this great gift and its possibilities were received. The competent ignored it and the incompetent ridiculed it. Even when Laënnec read his paper, "A Memoir of Auscultation", to the Academy of Sciences, the notable gathering listened with profound respect but without the slightest bit of enthusiasm. Laënnec was not disturbed and kept improving his invention constantly, but it remained monoaural. The instrument went under many names. Laënnec called it cylinder, others called it baton, solometer and cornét médicale. Eventually he gave it the name of stethoscope.

In August of 1819, Laënnec published his masterpiece. It was called "On Mediate Auscultation". The discovery of the sign of pectoriloquy is beautifully written. In his own words:

"While holding the stethoscope applied below the middle of the right clavicle, I made the patient speak. Her voice seemed to issue directly from the chest and pass unaltered through the central canal of the instrument. . . . . In no other part of the chest could I find anything like it. I examined most of the patients and found the same sign in 20 per cent of them. Almost all of them were sufferers from phthisis who had reached an advanced stage. From that time I suspected that the phenomenon might be due to cavities produced by softening of the tubercles and known under the name of ulcers of the lung. Most of the patients having later died in the hospital, I was able to verify by autopsy that I had reasoned correctly."

Laënnec's studies of breath sounds and râles are substantially the same as we know them to-day. Râles he classified into: Moist, or crepitant; Mucous, or gurgling; Dry Sonorous, or snoring; and Dry Sibilant, or whistling Bronchiectasis he attributed to the efforts of any disease which caused a violent cough. As was mentioned before, his chapter on pneumonia is considered a classic. In addition he described with accuracy emphysema, pulmonary apoplexy, lung gangrene, and pneumothorax. Laënnec also wrote on heart disease but in this he did not do so well. The physiology of the heart and heart sounds was then little known and as Thayer has put it, "Starting with the false hypothesis that the second sound was auricular in origin, he never found his way out of the jungle."

Not only was this masterful treatise cooly received but those physicians who used the stethoscope were commonly considered charlatans. When Forbes prepared an English translation, he wrote in the preface:

"That it (auscultation) would ever come into general use I am extremely doubtful . . . it is opposed to our habits and associations . . . there is something ludicrous in the picture of a grave physician proudly listening through a long tube . . . there is in this method a bold pretention to certainty and precision in diagnosis which is somewhat startling to the calm cautious habits of philosophising to which the English physician is accustomed."

Laënnec's attitude through all this antagonism was calm and philosophical. He wrote to a cousin, "Men need these things dinned into their ears many times and from all sides. The first rumor makes them prick their ears; the second registers, and the third enters."

Following the presentation of his treatise he retired from medical life for two years and took a much needed vacation in Brittany. Laënnec's efforts had made him a very sick individual. In addition to his asthma he had begun to experience attacks of angina pectoris (during which attacks he would unconcernedly observe the pulse and its return to normal). He also had had an attack of gout and an autopsy infection. And so for two years he walked, and fished, and studied nature. One medical observation he did make, and that was the rarity of tuberculosis on the seacoast. Finally his health returned and with that the conviction that a physician's place was in the hospital. Besides, his finances were running low, and so, on November 15th, 1821, he returned to Paris.

During his absence the profession had had time to assimilate his great book so that when he returned it was as a conquering hero. Physicians came from all over Europe to hear the discoverer of auscultation. He was swamped with consultations, and the Duchess of Berry made him her personal physician. Within a year he had become Professor and Royal Lecturer at the College of France and in 1824 he was made a Knight of the Legion of Honor. But Laënnec did not feel that he had reached the summit of his glory and was always looking for a specific cure for tuberculosis. He tried potassium iodide, chlorine gas, infusion of seaweed, and many other remedies, but one thing he had found out was beneficial and that was fresh air. Laënnec's personal popularity, how-

ever, was very short lived. It was not in his destiny to become a living medical hero. Although a proper appreciation of the momentous importance of his work should have unquestionably made him the ranking physician of France, the final chapters of his life are full of misunderstandings, disappointments, and even abuses.

Broussais, who had also been a pupil of Corvisart, was the medical theorist of the day. When Laënnec would laugh at his theories and point out his errors of diagnosis, Broussais would retaliate by saying that Laënnec encouraged his readers to satisfy their curiosity by autopsy rather than the desire to prevent autopsy. Broussais had elaborated a complex "Physiological Doctrine" which ascribed all vital processes to irritation. For example, tuberculosis could be prevented by means of antiphlogistic revulsives stopping irritation of the respiratory apparatus (We exceedingly regret that we can add nothing to clarify the above application of the doctrine). Broussais had the manner and language of the raving charlatan but he knew how to stir up the populace in his favor, and when he derided Laënnec's study of melanotic tumors by saying that they were the products of his gloomy imagination, the mob grinned appreciatively and applauded Broussais. As time went on the conflict lost its scientific aspect and became one purely of personalities, and in as much as Laënnec never made appeals to convince the crowd he became intensely unpopular. His small stature was caricatured and his character was slurred. Even his skill was discredited. When Laënnec brought out that tuberculosis was contagious and suggested a specific origin, he was not only laughed at but was looked upon with contempt. But Laënnec was a prophet save in his own country, for his lectures were still crowded with foreign physicians who came to hear the great man, while the students, prejudiced by the popular journals, resented their presence.

Laënnec was growing old physically and felt the need of a cheerful home and a sympathetic companion. As was mentioned earlier, he had met Mme. Argou in 1805 and he had continued his acquaintance with her. In 1822, whether due to loneliness or affection is not known, he invited her to take charge of his house as a sort of housekeeper. But the social spirit of Paris being the same throughout the centuries, so much malicious gossip was spread about the couple that they felt obliged to marry to stop the chatter. He was an asthmatic physical wreck and she a widow of forty-five whose ill health made her look ten years older. But we are told that the poetic priest who married them sang tender hymeneal verses. The groom continued his scientific labors and despite his amatory distractions prepared a second edition of his treatise in 1823 which was almost a complete work on general medicine including a treatment of nose and ear diseases.

But his health continued poor and in April, 1826, he contracted a severe cold which was soon followed by high fever and pain in the chest. He was bled twice and following the second bleeding he detected while he was in the semi-erect position a heart murmur which he immediately recorded in his notebook—as if he were an attending physician, observing the case. He recovered from this illness sufficiently to enter his treatise on auscultation for the prize of the Institute of Medicine for the best medical work of the year but was disappointed, the award going to the discoverer of quinine sulphate. In May, he again became ill, this time with diarrhoea, fever, and a productive cough. Hoping that the sea air would again cure him, he set out for Brittany, but the journey was made in bad weather and with several accidents so that when he arrived there, he was in a state of exhaustion. He was resigned and expected the end to come soon. When his fellow physicians assured him they could hear nothing abnormal in his chest, he insisted that he could, if he could only use the instrument. Eventually his colleagues found râles in his chest and a mass in his abdomen. But he was cheerful and as long as he had strength he would walk or be carried about his garden. Robinson describes a marriage festival in Brittany in which the merriment has been intense and then, as the guests depart, the country becomes very still —so quiet that in the silence of the night a constant hacking cough can be heard. It is Laënnec dying of tuberculosis. Toward the end he sank into a delirium from which he came out only once and in this interval of rationality he took the rings off his fingers saying that he would spare some loved one the melancholy task. He sank back into coma and at half past five, August 13th, 1826, passed away.

His name remained the greatest in the history of tuberculosis until that epochal evening two generations later when Robert Koch read his paper, "The Etiology of Tuberculosis." Laënnec never met with general acclaim. His greatness came with later generations. But he was never the man to seek the praises of the multitude, all he desired was accomplishment. In his own words, "I shall consider it ample, yea, more than sufficient reward for my labor, if it should prove the means by which a single human being is snatched from an untimely death."

104 Second Avenue.

Prenatal Syphilis

(*Concluded from page 288*)

Another thing: in connection with children, the Welander Home in Copenhagen has something like 150 children, and the oldest we saw there were five or six years of age (the Home has not been in existence very long). I think the average visitor would be impressed by the fact that it might have been better if some of those children had not survived; you see them growing up hydrocephalous and otherwise defective, with Hutchinsonian teeth, and with bone lesions of various kinds. Some of these children were in a very deplorable condition, and in referring to that —Dr. Eller, I think—expressed the hope that they would not grow up to become adults. But apart from that, where they got younger children there at a very early age the results were very successful, and these children did not look any different from the other children you see in Denmark. Denmark has a lot of tuberculous children; you see a great many sickly looking children, while going about the country, but those children in the Home—apart from those I specially mentioned—are pretty healthy, and you feel that some good is being done in their cases, but in regard to the older ones you feel rather sad that they have survived, and that it would have been much better if they had passed out.

Medical Fees

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cians should also bear in mind that in the majority of instances an insurance company by its contract with the employer is the agency which makes the payments awarded. Lack of cooperation between physicians and the insurance company has caused physicians to look with disfavor upon what they term "compensation cases". Reasonable fees and frank and frequent reports to the insurance carrier regarding a case being treated will tend to bring about a state of harmony with resulting mutual benefit to all parties concerned.

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Nose and Throat

Basement Membrane in the Mucosa of the Upper Respiratory Tract

G. E. Shambaugh, Jr., (*Archives of Otolaryngology,* 13:356, April, 1931) reports a study of 440 specimens of mucous membrane from some part of the upper respiratory tract obtained at operation at the Massachusetts Eye and Ear Infirmary. In 271, or 62 per cent., no basement membrane was found; in 85 cases the basement membrane was 5 to 10 microns thick, in 55 cases 10 to 25 microns and in 29 cases over 25 microns. Of 27 specimens of normal mucous membrane, 7 showed a definite basement membrane, not over 10 microns thick. Of 24 cases of asthma two-thirds showed thickening of the basement membrane. The epithelium was intact in 89 per cent. of the specimens with no basement membrane, but in none of those with thickened basement membrane; complete desquamation of the epithelium was present in only 0.5 per cent. of the specimens with no basement membrane and in 63 per cent. of those with thickened basement membrane. From his study of these specimens, the author concludes that a definite basement membrane may be found anywhere in the upper respiratory tract, and may be seen occasionally in normal-appearing mucous membrane, but is probably evidence of chronic epithelial irritation in the past. It is composed of a dense, more or less homogeneous layer of collagen underneath the epithelium and is interspersed with canaliculi through which leucocytes migrate to the surface. When greatly thickened it is associated with desquamating epithelium. This suggests that the presence of basement membrane results from stimulation of connective tissue cells by abnormally active epithelium; a thickened basement membrane has no clinical or pathological significance other than as an evidence of chronic epithelial irritation, past or present.

Diet in Sinusitis in Children

A. G. De Sanctis (*Annals of Otology, Rhinology and Laryngology,* 40:48, March, 1931) on the basis of recent experimental work and his own clinical experience concludes that a liberal supply of vitamins A and D in the diet is an important factor in the prevention and treatment of sinusitis in children. One of the best sources of these vitamins is cod-liver oil or one of its concentrates. The diet in sinusitis in children should be high in protein and in fat and comparatively low in carbohydrates. The fat should be given chiefly in the form of butter or cream. For four years the author has used such a diet with an added supply of vitamins A and D in the management of children with sinusitis as an adjuvant to the local treatment indicated. The results were sometimes striking especially in regard to gain in weight and improvement in general condition. While the diet alone, without the proper local treatment, is not sufficient to bring about such improvement, there are a number of cases in which the patient does not make satisfactory progress under appropriate local treatment until the diet is corrected.

Local Vaccination in Maxillary Sinusitis

J. Helsmoortel (*Annals d'otolaryngologie,* 1:163, February, 1931) reports the treatment of maxillary sinusitis by local applications of vaccine. Daily treatments are given, about 5 c.c. of vaccine being injected after a preliminary lavage of the sinus with physiological saline. Stock vaccine is used for the first treatments, and as soon as possible an autogenous vaccine is used, prepared from the organisms isolated from the pus obtained by the first lavage. In approximately 50 cases treated by this method, all but 3 were definitely cured; these 3 were operated, and in 2 polyps were found in the maxillary antrum, while in the third case the sinusitis was due to a spirochetal infection which did not yield to the vaccine treatment or to local applications of novarsenobenzol or spirocide. In most cases the vaccine treatment effected a rapid cure, but in some treatment was given for a month or more—in one case for three months before cure was complete.

Nasal Packing Following Submucous Resection of the Nasal Septum

E. Roth (*Archives of Otolaryngology,* 13:732, May, 1931) notes that packing the nasal fossae so as to obstruct respiration after operation on the nasal septum, causes much discomfort besides the danger of secondary otitis media or sinusitis resulting from the obstruction. The omission of all packing, however, results in secondary hemorrhage and often in the formation of hematoma. The author has devised a method of packing the nasal fossae which allows free nasal respiration. He inserts a piece of smooth rubber tubing (from a size 22 French rectal catheter) into each nasal fossa, for about 2 inches from the nostril. This tubing rests on the floor of the nose. The nasal fossae are then packed in the usual way with petrolatum gauze. The patient breathes comfortably through the tubing. If the tubes become obstructed with mucus, they can be cleared by the injection of a few c.c. of sterile salt solution and its expulsion by the injection of air.

Tonsillectomy in the Acute Stage of Inflammation

K. Mathé (*Archiv für Ohren-Nasen-und Kehlkopfheilkunde,* 128: 225, April 4, 1931) advocates the removal of the tonsils during the stage of acute inflammation, if there is abscess formation, or evidence of sepsis or thrombus. The operation is especially indicated in the acute stage of peritonsillar abscess. The pus is first evacuated, opening up the upper pole of the tonsil if necessary to accomplish this, and then the tonsils are removed. In the acute stage, the author has found that nerve block anesthesia gives the best results; the nervus glossopharyngeus, the nervi palatini posteriores and medii, and the ramus lingualis of the mandibular nerve are blocked. The author has found that the period of pain and disability in peritonsillar abscess is much

shortened by operation in the acute stage. The healing is equally rapid and no ill effects have been observed.

Artificial Sunlight in the Treatment of Laryngeal Tuberculosis

J. W. Miller (*Archives of Otolaryngology,* 13:326, March, 1931) reports the treatment of 74 patients with laryngeal tuberculosis by Wessely's modified carbon arc-light. This machine delivers powerful concentrated ultraviolet rays with wave length of about 300 millimicrons, with the heat rays eliminated. Patients in good general conditions without lesions of the epiglottis were irradiated directly by means of the Seiffert laryngoscope; other patients were irradiated indirectly with steel laryngeal mirrors. Of the 74 patients treated, only 2 showed no improvement; both of these had far advanced pulmonary and laryngeal lesions. Fifty-nine patients showed complete healing of the laryngeal lesions; 13 showed improvement in the subjective laryngeal symptoms, especially relief of pain, with either partial or no healing of the lesions. In some of the cases in which the laryngeal lesions healed, there was marked improvement in the general condition of the patient, subsidence of fever, and improvement in the pulmonary condition. In other cases with equally good laryngeal healing, the pulmonary condition was not influenced.

Tracheotomy and Roentgen-Ray Irradiation in Tumors of the Larynx

A. Zuppinger (*Zentralblatt für Chirurgie,* 58:1170, May 9, 1931) reports 2 cases of laryngeal cancer in which obstruction made tracheotomy necessary. In one the tracheotomy was done prior to any Roentgen-ray treatment; in the other shortly after Roentgen-ray treatment was begun. In one case a superior tracheotomy was done and in the other the tracheotomy opening was made through the tumor. Both were treated with fractional dose Roentgen-ray irradiation. In one a total dosage of 6,100 R, in the other 7,020 R was given in about a month. In both the tumor entirely disappeared, but necrosis developed around the tracheotomy opening causing death. At autopsy no evidence of tumor tissue was found at the site of original tumor; in each case one lymph node showed carcinoma. In both cases a glass tube was used in the tracheotomy to prevent secondary irradiation. In these cases the unfavorable result was due to the necrosis of tissue in close proximity to the tracheotomy. The disappearance of the local tumor shows that in these cases a very excellent palliative effect would have been obtained even if carcinoma persisted in the lymph glands. In such cases in order to prevent injury to the region of the tracheotomy, an inferior tracheotomy should be done, as low as possible and as far away from the site of the tumor as possible. In this way good palliative, if not curative, results may be expected from fractional Roentgen-ray irradiation of inoperable laryngeal tumors.

Otology

Allergy in the Middle and Internal Ear

Arthur W. Proetz (*Annals of Otology, Rhinology and Laryngology,* 40:67, March, 1931) reports illustrative cases showing that local allergic reactions may cause symptoms simulating other diseases by the mechanical reaction of the edema on the tissues of the labyrinth and the tympanum. In the few patients observed with allergic reactions in the labyrinth, the symptoms were those of sudden vestibular irritation and cochlear disturbances. The patient has attacks of vertigo of varying intensity, usually accompanied by nystagmus; and there is often a high-pitched tinnitus and slight loss of hearing on the affected side that may precede, accompanying or follow the vertigo. In the interval between attacks the vestibular reactions and the hearing are entirely normal. Allergic reactions in the middle ear produce an edema of the tympanum including the membrana tympani, which results in attacks of sudden severe pain that subsides spontaneously and reduction of hearing from mechanical "damping" of the conduction apparatus. In these cases the drum is red and swollen but has not the typical convexity of the bulging drum of infectious otitis media; the edematous epithelium may give it a whitish cast. If the drum is incised, there is a sensation of cutting into a spongy structure; a drop of blood or serum exudes but there is no suppuration and the incision heals promptly. Most of the author's cases of this type have been in children under five years of age, the more severe symptoms occurring at the time of weaning when the infants are sensitive to some component of the new diet. Some of these patients show other allergic manifestations, suggesting the diagnosis. There may be eosinophilia, and the middle ear attacks usually are afebrile, which differentiates them from infectious otitis. Skin tests are not always positive in these cases, and the correct diagnosis is best established by a careful history of the patient's "sensitivities" and dietary tests.

The Eustachian Tube in Relation to Chronic Diseases of the Middle Ear

L. K. Pitman (*Archives of Otolaryngology,* 13:676, May, 1931) reports his personal observations on the functions of the Eustachian tube in relation to chronic middle ear disease. Physiologically the Eustachian tube serves to equalize the pressure of the external air and that in the middle ear. The protective function generally credited to the Eustachian tube is that it is lined with ciliated columnar epithelium having a wavelike motion toward the pharyngeal orifice. The author has observed two other protective functions: 1. The torus tubarius, *i.e.*, the free margin of the right triangular cartilage of the Eustachian tube, moves backward, upward and inward when the tube is opened, sweeping any secretion backward and away from the orifice. 2. The pharyngeal orifice, by its opening movement, breaks up the surface tension of any film of secretion that may be across it and causes such a film to collapse, leaving the orifice free. In regard to diseases of the middle ear secondary to nasopharyngeal involvement, the tympanic portion of the Eustachian tube has little importance. An experiment designed by the author to test the patency of the isthmus showed that obstruction of this portion of the Eustachian tube was not present as a rule in cases of chronic middle ear disease associated with nasopharyngeal disease; in only one out of 25 cases was there slight (and doubtful) evidence of isthmus obstruction. It is the pharyngeal portion of the tube that is of importance in middle ear disease. If this is kept constantly closed owing to some pathological condition in the nasopharynx, the pressure of the air in the middle ear will be diminished, followed by retraction of the drum, etc. If it is constantly open the protective function of this pharyngeal portion of the tube is greatly destroyed and pathological secretions enter the middle ear. The author has found the hypertrophied tonsil to be the chief cause for a pathologically open Eustachian tube.

Bone Conduction

V. O. Knudsen and I. H. Jones (*Archives of Otolaryngology,* 13: 489, April, 1931) use a special bone conduction receiver for testing hearing by bone conduction; and tests are made in a sound-proof room as well as in an ordinary room. Bone conduction with this ap-

paratus can be measured in a sound-proof room for frequencies between 64 and 4,096 double vibrations. Tests on normal persons were made to determine the average sensitivity to tones of different pitch; the acuity by bone conduction for normal persons was not higher in the soundproof room than in the office. In 400 pathological cases it was found that a considerable number showed "increased" bone conduction when tested in the office; 12 of these patients were then tested in the sound-proof room. Here none of them showed a greater bone conduction than normal persons; in 4 of these cases the diagnosis was otosclerosis and in 5 chronic catarrhal otitis media. This does not necessarily signify that increased bone conduction never exists, but that cases of this type with which we have always associated bone conduction, do not in reality show this increased conduction. Quantitative measurements of bone conduction through a wide range of frequencies are of value in differential diagnosis, indicating the degree to which either the conductive or the perceptive lesion has contributed to the deafness. The authors describe a sound-proof booth that they have constructed that can be erected in any office of average size.

One Hundred Cases of Deafness

In an analysis of 100 unselected cases of deafness E. M. Freund and H. Hays (*Laryngoscope*, 41:326, May, 1931) found that 50 per cent gave a history of ear discharge—"running ear"—dating back to childhood. Over 65 per cent showed retracted drums, but in more than half this number the drums were fairly moveable. Over 50 per cent showed evidence of tonsillar disease ranging from chronic hypertrophy to the submerged infected type. About 35 per cent had "postnasal drip" indicating faulty sinus drainage and nasopharyngeal infection; the turbinates were found diseased in 20 per cent. In several cases the fossa of Rosenmüller was the site of adhesions interfering with the patency of the Eustachian tubes; and in others there was a marked increase in lymphatic tissue in the nasopharynx. About 50 per cent noted that some intercurrent disease tended to aggravate the deafness.

Bath Treatment for Deafness

James Adam (*British Medical Journal*, 1:621, April 11, 1931) reports the treatment of cases of progressive deafness of the catarrhal type by hot immersion baths with magnesium sulphate (1 pound) added to each bath. In most cases there was definite improvement in hearing, and in some relief of tinnitus. The improvement was most marked in the less chronic cases. The treatment was also used in 2 cases with Ménière's complex, both of long standing; there was some relief in one of these cases. But the author is of the opinion that in earlier cases of this condition, the treatment would be of definite value. In some of the cases of chronic catarrhal deafness all other methods tried had failed to give any relief, so the author believes the bath treatment is worthy of trial in such cases. In order to be effective the baths must cause the patients to sweat; in one case the amount of magnesium sulphate used was doubled to effect this. The baths are not indicated for elderly, weakly or cardiac patients.

The Ear in Congenital Syphilis

N. Asherson (*Journal of Laryngology and Otology*, 46:326, May, 1931) reports a study of the otological symptoms in 50 cases of congenital syphilis, all of whom had been under treatment for some time; the ages ranged from infancy to puberty. Nystagmus was present in 15 of the 50 cases; in 5 of these tests for compression nystagmus were not done because of complicating conditions. In the other 10 cases compression nystagmus was elicited (by compression of the air in the meatus by the finger); in 5 of these there was no spontaneous nystagmus, and in 5 there was spontaneous nystagmus exaggerated by the compression test. In all of these cases the tympanic membrane was intact; therefore these cases represented the "fistula symptom without fistula;" this fistula phenomenon is held to be pathognomic of congenital syphilis by continental otologists. In 12 of the 15 cases the tympanic membrane showed an unusual leaden-blue or steel-blue color, which the author has never observed in non-syphilitic children; as 27 of the patients had wax in the ear that prevented a view of the tympanic membrane, the percentage of cases with the steel-blue membrane is high. There was only one case of chronic otorrhea, and this was not syphilitic but due to the ordinary pyogenic organisms. The author is of the opinion that children with congenital syphilis do not develop syphilitic otitis while under treatment. Moreover, of 320 cases with chronic otorrhea in a children's clinic, only one had congenital syphilis. In the series of 50 cases studied, 4 were deaf, and in 2 the deafness came on after years of antisyphilitic treatment.

Gynecology

Ovarian Extract in Ovarian Deficiency

H. Gardiner-Hill and J. F. Smith (*Lancet*, 1:464, February 28, 1931) report the treatment of amenorrhea or menstrual irregularity with the water-soluble ovarian extact prepared by Dodds and Robertson. This extract contains 10 rat units per c.c. In the authors' cases 1 c.c. was given daily by subcutaneous injection for six to eighteen days. This course of treatment was repeated as indicated. The 63 cases treated at St. Thomas' Hospital, London, England, included 7 cases of "primary amenorrhea," cases in which the normal age of puberty had been passed without any signs of the onset of menstruation; 19 cases of primary menstrual irregularity, with menstrual periods at three to four monthly intervals from the onset; 37 cases of secondary amenorrhea, in which menstruation ceased some years after normal onset. In the first group, only one patient menstruated after the injection of 18 c.c. (180 units) of the extract; this patient was a girl of nineteen with moderately developed secondary sex characteristics, in whom the onset of menstruation might have been imminent. In the 19 cases of primary menstrual irregularity, the normal menstrual rhythm was re-established in 6 cases. In 37 cases of secondary amenorrhea, menstruation was re-established in 20 cases, or 54 per cent, during or shortly after the treatment. In 12 cases menstruation continued normally without more than one course of treatment; and 2 of the patients, previously sterile, became pregnant. A comparison of these cases with those of the same group (secondary amenorrhea) in which the treatment was not successful, gave no indication as to the type of case most likely to benefit from the ovarian extract treatment. The results noted in the successful cases indicate that the ovarian extract acts by stimulating defective ovarian activity rather than by specifically inducing bleeding.

Roentgen Diagnosis in Gynecology

I. F. Stein (*American Journal of Obstetrics and Gynecology*, 21:671, May, 1931) states that he has found the Rubin test with carbon dioxide under manometric control the most satisfactory method for a test of tubal patency; for this test fluoroscopy is not essential. The transuterine introduction of CO_2 may be used, however,

for diagnostic pneumoperitoneum; in cases where transuterine insufflation is contra-indicated, the transabdominal route may be used. By the use of pneumoperitoneum the female pelvic viscera may be clearly outlined. By the use of lipiodol or other opaque liquid the Rubin test may be supplemented and the result recorded roentgenographically; by this method the escape of iodized oil from the fimbriated end of the patent tubes, or "spill," is demonstrated; and the exact site of the obstruction is determined. With lipiodol, the presence of fluid is shown, as in hydrosalpinx, by the formation of globules or "pearls;" abnormalities of the uterine cavity are also shown. The maximum information concerning the pelvic viscera is obtained by a combination of pneumoperitoneum and lipiodol. With ordinary care this procedure is safe and simple; the author has employed pneumoperitoneum in 530 cases, and the combined method in 200 cases—the latter in the last three years—without any accidents or complications.

Radiation Treatment of Malignant Chorionepithelioma

H. Wintz of the Erlangen Clinic (*Münchener medizinische Wochenschrift*, 78:781, May 8, 1931) reports the treatment of chorionepithelioma with Roentgen-ray irradiation. Chorionepithelioma is a comparatively rare tumor and but few cases in which irradiation treatment has been used have been reported. The author is of the opinion that irradiation is particularly indicated in chorionepithelioma, as the cells of this tumor are particularly radiosensitive, about 20 to 30 per cent more so than carcinoma cells, and 40 to 50 per cent more so than the most vulnerable of the surrounding normal tissue cells. As chorionepithelioma metastasizes by way of the blood stream, there is danger of dissemination of the malignant cells by operation. In the treatment of chorionepithelioma, all manipulation of the uterus should be avoided as far as possible, although curettage must sometimes be done to establish the diagnosis—this should be done with the utmost care. For this reason also, the author prefers the Roentgen-rays to local applications of radium, although the latter was employed in addition to Roentgen irradiation in 2 of his cases. The dosage used was from 80 to 90 per cent of the skin erythema dose. Of 11 patients with chorionepithelioma treated at the author's clinic, only 3 have died; in one, death was due to pulmonary metastases; in one, to operation for intestinal obstruction a year after treatment; no evidence of the tumor was found at autopsy; in one case the patient died of influenzal pneumonia nine years after treatment for chorionepithelioma without evidence of its recurrence. The other patients are living and well from two to thirteen years, 5 of them for five years or more.

Partial Incontinence of Urine in Women

D. Dougal (*Clinical Journal*, 60:217, May 13, 1931) in a study of over 1,000 patients in a gynecological clinic found that 14.4 per cent had partial or complete incontinence of urine; most of these patients had had one or more pregnancies. In these cases the urinary incontinence was the only symptom; in some it developed immediately after labor; in others not until some years afterwards. The involuntary passage of urine in these cases is particularly apt to follow any strain or movement. Examination in these cases usually shows a laxity of the vaginal orifice and some obvious prolapse of the vaginal walls; if a sound is passed into the urethra, it will be found "to literally drop into the bladder," the sphincter action being almost completely lost. This type of incontinence is due to injury to the vesical sphincters and their supports in the anterior part of the pelvic outlet, and the source of the trauma is usually the strain of the latter part of the second stage of labor. The author has found the most satisfactory operation for the correction of this condition is an anterior colporrhaphy combined with a modification and extension of Kelly's operation on the urethral and vesical sphincters—the insertion of deep mattress sutures in the bladder neck and along the urethra. The result of this operation, the author believes, is to create a mass of scar tissue which by contraction tightens up the surrounding structures. Of 25 cases operated by this method in the last four years, 18, or 72 per cent, are entirely cured, and 7 cases much improved. In all of these cases the incontinence has been of so severe a type as to cause the patients so afflicted much distress in each instance.

Cysts of the Corpus Luteum and Amenorrhea

G. Cotte (*Gynécologie*, 30:129, March, 1931) reports 5 cases of cysts of the corpus luteum in 3 of which the cessation of menstruation and the presence of the adnexal mass suggested the diagnosis of ectopic pregnancy. These 3 cases were operated, and at operation no signs of pregnancy, either uterine or extra-uterine, were found, but a corpus luteum cyst was revealed. In 2 cases (women under forty years of age) the cyst was resected, in the third case (a woman of forty years) the ovary was removed. In all menstruation was re-established after operation; and the two younger patients have since had two and three normal pregnancies respectively. In 2 other cases, the menstrual period was delayed, and at that time a cystic tumor was palpated in the cul-de-sac of Douglas; in both these cases operation was somewhat delayed, the cyst disappeared spontaneously and menstruation was re-established; menstruation was entirely normal without pain or the expulsion of clots; and one of these patients subsequently became pregnant. All corpus luteum cysts, the author notes, do not cause amenorrhea. A cyst may develop at any stage of the evolution of the corpus luteum, and unless it is in the stage when the cells are actively secreting, the cyst causes no amenorrhea or other functional disturbances.

Olshausen's Operation for Suspension of the Uterus

W. P. Graves and G. Van S. Smith (*Surgery, Gynecology and Obstetrics*, 52:1028, May, 1931) report 3,358 cases in which Olshausen's operation for suspension of the uterus was done at the Brookline (Mass.) Free Hospital for Women. Until recent years heavy silk was used for sutures, but this occasionally produced a postoperative sinus. Recently catgut has been employed, which entirely prevents this complication. Of the 3,358 cases operated, 678 were cases of simple retrocession, 357 cases of anteflexion and retrocession, 1,422 cases of prolapse, 294 cases of procidentia and 415 cases of pelvic inflammation. The operative mortality was 15, or 0.446 per cent.; 2,764 cases were followed up; of these 1,854, or 68.5 per cent., were completely relieved by symptoms and 701, or 26.6 per cent., partially relieved. Of the cases that were examined, 83.4 per cent. showed the uterus in anatomically correct position. In the cases followed up there were 856 pregnancies in 489 patients, with 575 living normal children and 406 normal deliveries.

Obstetrics

Alkalies in the Treatment of Renal Complications of Pregnancy

A. A. Osman and H. G. Close (*Proceedings Royal Society of Medicine*, 24:880, May, 1931) report a study of the plasma bicarbonate in 43 cases of pregnancy toxemia with renal symptoms and the treatment of

some of these cases with alkalies. In a control determination of the plasma bicarbonate in 238 cases of normal pregnancy, the authors found that it was considerably diminished in 80 per cent. of cases; and this diminution was noted in the early weeks of pregnancy and continued at much the same level throughout. In cases of pregnancy with albuminuria and with chronic nephritis, the plasma bicarbonate was at about the same level as in normal pregnancy; in cases of pre-eclampsia and eclampsia it was still further reduced. Sixteen cases—12 of pregnancy albuminuria and 4 of pre-eclampsia—with edema were treated with gradually increasing doses of alkalies—equal parts of potassium citrate and sodium bicarbonate. In all but one of the 16 cases, there was an increase in the urinary output, decrease in albuminuria, and subsidence of the edema. Although the urine became alkaline and good diuresis was obtained, the plasma bicarbonate in these cases was not raised much above its original level, and only rarely to the normal non-pregnant level. In addition, 23 cases who had had albuminuria in previous pregnancies were treated prophylactically with the alkali mixture—the dosage being calculated so as to render the early morning specimen of urine definitely and permanently alkaline. No dietary restrictions were imposed. Albuminuria recurred in only 4 of these cases, although recent studies have shown the rate of recurrence of this complication to be high in succeeding pregnancies.

Treatment of the Toxemia of Late Pregnancy

E. A. Schumann (*American Journal of Obstetrics and Gynecology*, 21:381, March, 1931) reports a study of 111 cases of the toxemia of pregnancy occurring in various hospitals in Philadelphia, Penna.: in 28 of these eclampsia developed. In 107 blood pressure readings were recorded, and were found to be above 120 in all but 4 cases. A survey of the treatment shows "a striking unanimity of opinion among Philadelphia obstetricians." In the mild cases, elimination was effected by means of colonic irrigation with large quantities of water, sweat baths, and purgation with magnesium sulphate. In the more severe cases there was continuation of the elimination treatment with the addition of morphine with or without chloral—"stroganoff" or "modified Stroganoff" method. Intravenous glucose (25 per cent. solution) was given in the majority of cases; magnesium sulphate was given intravenously in a much smaller number; 15 patients were treated with heparmone; and 7 by venesection. If these methods failed to bring about improvement most obstetricians induced labor by means of bougies followed in many instances by extraction or version. Cesarean section was done in 11 cases, in 7 on the indication of increasing toxemia without effacement of the cervix. Of the entire series of 111 cases, 6 patients died; but many were admitted to the hospital immediately on the onset of toxemia and treated promptly; of the 28 cases with eclampsia, 6 died, but 3 of these were admitted in coma and too late for effective treatment, giving a corrected mortality of 3 deaths in 25 cases, or 12 per cent. Of the cases in which Cesarean section was done, none of the mothers died. The fetal mortality was high in this series—31.6 per cent.—although the maternal mortality was relatively low.

Irradiated Ergosterol in Pregnancy

G. C. Richardson (*Illinois Medical Journal*, 69:453, June, 1931) in his study of the calcium and phosphorus of the blood in pregnant women finds the calcium either low normal or below normal limits; the phosphorus shows a somewhat greater deficiency on a percentage basis. While the values might be satisfactory for a normal non-pregnant woman, "the added burden of a rapidly growing fetus" represents a sufficient demand on the maternal calcium-phosphorus mechanism to produce a relative calcium-phosphorus deficiency. He has found evidence that practically 75 per cent. of pregnant women suffer from some degree of tetany, usually slight. The more usual symptoms are cachexia, muscular weakness, muscular pain and contraction (cramps) particularly in the legs, puffiness of the face, hands and fingers, tingling or numbness of the fingers or extremities, increased brittleness of the teeth, and thinning and brittleness of the nails. These symptoms are relieved by the administration of irradiated ergosterol; the usual dosage was 20 drops of 250D irradiated ergosterol three times a day. In patients who were treated regularly with irradiated ergosterol, the author found that any varicosities present receded; there was marked reduction in post-partum bleeding; the condition of the teeth was improved; the patients had a feeling of increased strength and well being. No ill effects on the infants was observed: the coagulation time of the blood was definitely decreased in the infants and none developed cerebral hemorrhage. In addition to the viosterol treatment, the diet was regulated to insure an adequate calcium intake.

R. Spiegler (*Archiv fur Gynakologie*, 145:422, May 6, 1931) reports the determination of the total potassium and calcium in the blood serum, and also in the ultrafiltrate and electro-ultrafiltrate (ultrafiltration with the electrical current). In normal women in the intermenstrual period, 24.6 per cent. of the total potassium and 3.3 per cent. of the total calcium remained in the blood serum after ultrafiltration and electro-ultrafiltration. In normal pregnancy the percentage of potassium remaining in the blood serum was reduced, falling as low as 5.8 per cent. in the last stages of pregnancy. The calcium remaining in the serum after ultrafiltration and electro-ultrafiltration was, however, increased, reaching 32 per cent. of the total calcium in the second half of pregnancy. In both nephritic and eclamptic toxemia of late pregnancy, the non-filterable potassium remaining in the serum is further reduced than in normal pregnancy (to 1 or 2 per cent.); while the non-filterable calcium is also much reduced as compared with normal pregnancy, to 5.1 or 9.18 per cent. In normal pregnancy, therefore, the potassium becomes more diffusible, the calcium more fixed in the blood, but in the toxemias of pregnancy the diffusibility of both potassium and calcium is increased as compared with normal pregnancy.

Cervical Cesarean Section

L. E. Phaneuf (*American Journal of Obstetrics and Gynecology*, 21:498, April, 1931) reports 418 cervical Casarean sections done by him in 31 hospitals; of these 358 were done by the intraperitoneal route, and the last 198 cases by the author's own modification of the intraperitoneal operation with a transverse incision that curves upward placed as low down as possible in the lower segment. Of the 60 cases in which the extra- or trans-peritoneal route was used, 42 had a test of labor; in the 358 cases operated by the intraperitoneal route, 108 had a test of labor, including 68 of the 198 cases operated by the author's method. Nine patients had septic uteri with uteri-abdominal fistulae; all wounds were irrigated with chlorine solution and the operation done by the transperitoneal route; all recovered and were discharged with healed incisions. This indicates that the union of the visceral and perietal peritoneum in the transperitoneal operation gives a definite protection against peritonitis. The maternal mortality in the entire

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Treatment of Surgical Sepsis

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IN American literature the terms septicaemia is used to designate the septic processes. This is unfortunate in a way, for the word itself implies a preponderance of the blood in this disease. Important as the blood stream is in infections, it can only function as a transporting system and corresponds roughly to motor roads, railroads, etc. It would be inadequate for an observer to focus attention on the roads of a country and attempt to give a description of the social organization from that alone. These avenues are merely means of exchange of products that are elaborated in cities and towns and in no way represent the essence of the process itself. The word sepsis is much better, for it is only a word and we can readily add to or subtract from or change entirely our conception of this condition as from day to day our knowledge of the process grows.

When we speak of sepsis, it is important to clarify in our mind just what it is that we are considering. If we have a small wound on the hand with red lines running up the arm and tender enlarged glands in the axilla, that is not sepsis; even if we find bacteria circulating in the blood, that does not constitute sepsis. What is it then that lends this condition its outstanding character? It is that period when the defensive forces of the organism are no longer able to cope with the invader and the process takes on a general character in contrast to the more local manifestations up to that time.

This brings us to consider the defensive mechanism of the organism against infection. This apparatus is two-fold, specific and non-specific and both are functions of the macrophage system in the sense of Metchnikoff and the Reticulo-Endothelial system of Aschoff-Landau. We know that this apparatus is the site of phagocytosis and must also be intimately connected with the formation of anti-bodies. It is known that when certain substances, dyes for instance, or bacteria, gain access to the blood stream, they are immediately taken up by the reticulo-endothelial system and if possible their circulation is arrested and the process is shortly changed from a general to a local one, and this constitutes the first general line of defense of the organism. This may not be clear cut and it is not impossible that advantage may oscillate for a time before the invader or host is overcome. The second step is a renewed effort on the part of the body to prevent further access to the blood stream to the invader and his destruction where arrested. In infections characterized by incubation periods, the body has an opportunity to develop specific immune bodies against the invader, but in sepsis when the incubation is either short or absent the non-specific defenses bear the brunt of the attack. In the treatment of sepsis it is of the utmost importance to keep clearly in mind the distinction between procedures aimed at reinforcing the defense forces either specific or non-specific and the attack aimed at the offender himself. In all forms of surgical sepsis our aim must be to attack the invader at the point of entry if possible and to help the organism to combat the bacteria that already have gained access to the blood stream or been caught in the meshes of the reticulo-endothelial system.

Well developed sepsis, under present conditions, is always an exceedingly serious matter. From hour to hour the fate of the patient hangs in the balance and it is the hidden and latent forces of the organism that have been acquired throughout the ages that are called upon to meet their enemy in decisive combat. This leads one to emphasize the tremendous importance of keeping at all times the reserve forces of the body at par, and this resolves itself in the general term of hygiene. Chronic foci of infection, underweight and obvious defects of the organism should never be allowed to persist, for if ever the patient is confronted with sepsis, he will suffer at a time when he needs all his reserve forces. In no condition is prophylaxis so important.

If sepsis does occur it is of prime importance to recognize it at the earliest possible moment. It is usually not feasible to decide the exact hour when an infection becomes a septic one, but by keeping in mind this possibility, energetic treatment can be instituted at once with the aim of preventing what is at best a serious complication. For instance, what an error it is for the practitioner to go on treating a deep seated infection of the finger or hand by warm compresses and daily pricking with the tip of the scalpel to allow him to squeeze a few drops of pus out of the wound. In dealing with infection of the extremities early and free incision is absolutely necessary. Rather open too freely than not enough. The site of infection itself must be opened and a number of incisions should be made in the tissue with engorged lymphatics. This procedure must be so thorough that a second operation should never be necessary. A radical procedure here has often saved an extremity or a life.

In uterine conditions, either as a result of abortion or delivery, again prophylaxis is of such importance; a miscarriage in itself is a comparatively mild disease, it is the infection that is so deadly. Early removal of retained decidual and procedures to reinforce the body defenses usually prevent sepsis. When sepsis does occur as a result of uterine infections, it is so difficult at times to decide whether to resort to radical measures or continue less heroic treatment. Prompt and energetic treatment may save a life, on the other hand unnecessary or unwise operative procedures may be the last step towards an unfavorable issue. If operative measures are indicated, one should not resort to half way measures. An infected uterus sometimes can be removed by vaginal hysterectomy with success, or a supravaginal hysterectomy leaving the abdominal wound open with free drainage may give a favorable issue. Tying of pelvic veins as recommended by Martens can only give an exceptional good result. When the pelvic veins are thrombosed or inflamed, they usually require more than tying to decide the balance between recovery and death. After abdominal operations for septic conditions, for pelvic infections, gangrenous appendicitis, diverticulitis of sigmoid or inflammatory proc-

esses of gall-bladder or perforated gastroduodenal ulcer, it is of utmost importance not to close the abdominal wall. It is extraordinary what the peritoneum can overcome but if infection of the layers of the abdominal wall takes place without free drainage, a severe additional tax is put on the organism. That in itself can cause a great deal of trouble as is often seen after operations when abscesses form in the abdominal wall and the peritoneum itself does not manifest signs of inflammation. After such abdominal operations the wound can be left without a single suture and packed with gauze and attention focused on the peritonitis; once this condition is under control the wound can be brought together with adhesive straps or sutured secondarily. The important thing is to concentrate attention on the peritoneum. An open wound or a hernia is a small matter relatively and can be attended to at a later time if the patient survives.

Naturally the treatment of sepsis will vary with the portal of entry, but the principles outlined apply to all.

The procedures aimed at increasing the defenses of the organism are not so clearly established. Blood transfusions there can be no doubt increase the nonspecific forces of the body and if obtained from a donor who has been vaccinated against the specific invader, may be of assistance to the specific forces. Repeated hypodermoclysis of salt solution and glucose with insulin prevents dehydration and supplies the patient with nourishment while the digestive organs are temporarily out of order and the organism is massing all its resources against the invader. Foreign proteins are being used by clinicians all over the world to combat infections but it is certainly difficult to demonstrate decisive results with them. Vaccines are more hopeful; they have both specific and nonspecific effect and in the present state of our knowledge, it must be considered an error not to give the patient the benefit of their use. Sera are likewise useful. Mercurochrome and allied antiseptics intravenously have been disappointing to most observers. Pyridium given by mouth is excreted in the urine without being decomposed and is a powerful antiseptic. While circulating in the blood it may hinder the growth of bacteria and alongside of them in the reticulo-endothelial system it may help in destroying them. Optochin is clearly indicated in pneumococcic sepsis for its specific anti-pneumococcic effect is now pretty well established. Measures generally classified under the heading of hygiene often constitute the backbone of the treatment of sepsis and should not be neglected.

When the portal of entry cannot be located, treatment is specially difficult. These patients show high mortality and no treatment seems specially worth while.

Sepsis constitutes a large problem in medicine today and steady progress is being made. Too much emphasis cannot be laid on the necessity of each individual keeping himself in the best possible condition to meet the invading germ at the portal of entry and wage a winning combat if bacteria gain the upper hand and cause sepsis.

Of all diseases, sepsis is the one most likely to be controlled by the combined attack of the hygienist, practitioner, surgeon, internist, specialist, immunologist and a good nurse.

1214 Main Street.

The Visualization of Tissue Growth

A method which enables scientists for the first time to study over a long period the microscopic details of the growth of living tissue in a warm-blooded animal has been developed in the laboratory of anatomy at the University of Pennsylvania's School of Medicine.

Through its use, the cellular changes in living tissues can be studied as by no other method, and fundamental information regarding the manner in which abnormal cellular reactions occur in infectious diseases like tuberculosis and tumor growth like cancer will be obtainable.

That such cellular reactions occur has long been known by the end results seen in these diseases, but by enabling the observer actually to see the entire process of cell changes the new method opens the door to enormous advances in knowledge.

The method, for whose rapid perfection and extension the Rockefeller Foundation has made a $75,000 grant to the University, consists of the introduction of a transparent, double-walled chamber, or "window", into a small hole made in the ear of a rabbit, the perforation being made in much the same manner as the human ear is pierced for the wearing of certain types of earrings.

One side of this "window" is of celluloid or glass, and the other of a very thin sheet of mica. The edges of the space intervening are left in contact with the tissues of the ear and from them the blood vessels and other living tissues invade the chamber until they form a complete new layer.

This new layer, only two-thousandths of an inch in thickness, is quite transparent and it is necessary only to place the "window" under the microscope to see with the most extraordinary clearness at 1000-fold magnifications the minutest elements—the individual cells—of which animals are made.

Moreover, since the new tissue is permanent and the chambers can remain in place for months without causing any discomfort to the animal, it is possible to make repeated observations and careful studies not only of the exact way in which the new growth occurs, but also of the way the tissue elements behave in conditions of health and disease.

Heretofore there had been no satisfactory region in a warm blooded animal in which such fine details could be studied on living growing cells inside the body. Investigators depended either on cutting thin pieces of dead tissue, staining them in various ways, and placing them on glass slides in order to study tissues and cells under the microscopes, or on keeping small pieces of tissue alive in "tissue cultures" outside the body.

The development of the new method grew out of a number of research projects in which Dr. Elior R. Clark, Professor of Anatomy at the University and director of the anatomical laboratory had engaged, and in many of which he collaborated with his wife, Eleanor L. Clark.

Dr. Clark's studies had been devoted to living structures in the lower forms of life, such as fish and tadpoles, cold-blooded animals, in whose transparent tail fins or gills it is possible to see with great clearness the finest details of cell structure. It was Dr. Clark's desire to extend these studies to higher animals, and at his suggestion and under his direction the preliminary experiments were carried out by Dr. J. C. Sandison, of the Department of Anatomy.

These experiments demonstrated the practicability of the "window" method, and the Rockefeller Foundation subsequently made a grant of $15,000 a year for five years for the rapid perfection and extension of the method.

Aided by this grant, the technique of constructing the chambers and inserting them has been developed by Dr. Clark and his wife, Dr. R. J. Williams and other research workers in the laboratory to such a point that a wide variety of studies in different fields of medicine may be carried out by this method.

Various modifications of the chambers have been devised to meet the solution of different types of problems and some of these types have been standardized. One such type, instead of allowing a space for the growth of new tissues, provides for the retention of some of the original tissue with its small blood vessels still circulating in a thin space between transparent walls.

Another type has a small hole in the bottom of the chamber for the purpose of "transplantation" of tiny bits of tissue from other parts of the body so that studies similar to those carried out by the many workers who are using the famous "tissue culture" method devised by Dr. R. G. Harrison, of Yale, may now be pursued on living cells inside the animal body.

Successful moving pictures of the circulation of the blood in these chambers have recently been taken by Dr. E. A. Swenson, a member of the staff of the laboratory of anatomy.

Studies which have already been made by this method have yielded a wealth of new facts regarding the way in which the minute elements of the body grow and behave in conditions of health, and enough preliminary observations also have been carried out to establish the value of the method in the study of disease.

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NEW YORK, AUGUST, 1931

John Osborn Polak

(March 12, 1870—June 29, 1931)

There came to him a Hand with some of the leaves of the tree of life. . . . And all the Trumpets sounded for him on the other side.

—*Pilgrim's Progress.*

"The Greeks Had a Word For It"

It is a delightful occupation to psychoanalyze the dead. A study of Napoleon's last illness showed that he may have had Frölich's syndrome and the onset of this condition was said to have been the cause of his lessened energy and lack of success in battle. Thus the anterior pituitary body has been blamed for his defeat at Waterloo.

Now Abraham Lincoln has been psychoanalyzed by Dr. Brill and classified as a schizoid manic personality. Of course, "the Greeks had a word for it."

Lincoln is accused of having a fondness for off-color stories. "Most of his biographers speak of this but are at a loss to explain why Lincoln resorted to this form of wit." This dual personality of Lincoln has been noted because of his tendency to tell obscene stories.

Judging from the number of men who enjoy an off-color story at times the whole world must be infested with "schizoids."

Lincoln was naturally depressed at times. All men are apt to be in this state especially when things are about to turn for the better. And since the crash of 1929 the world seems more or less in a depressed state.

Lincoln enjoyed a good story but almost invariably his stories carried a point he desired to emphasize.

Perhaps he had such a keen sense of humor that he enjoyed the effect his stories would have on some of his associates who were not "schizoids."

If Lincoln was a "schizoid" it seems rather unfortunate that there are not more like him.

Too bad Sir Oliver Lodge cannot communicate with Lincoln. He would probably shoot back a story about psychoanalysts and it probably would be to the point.

Lincoln did not pretend to cover up any defect he might have. Others more advanced in the social scale, so to speak, might have better control of their stories in public but might give vent in more constricted circles.

—M. W. T.

Debunking Birth Control

To the July issue of *Harper's Magazine* Mary Breckinridge contributes an arresting view of the birth control question. She is quite certain that the teaching of contraception to her Kentucky mountaineers, for whom she has long directed an obstetrical nursing service, would not appreciably affect their fecundity. The birth rate among these people is enormously higher than that for the United States as a whole. Mrs. Breckinridge is opposed to restrictions against the teaching of birth control under proper medical direction, but she does not believe that the solution of the problem of excessively large families is to be reached by anything so simple as a mere scrapping of laws. Birth control does not work. Russia, teaching contraception intensively, has to conduct abortion clinics on the grand scale. The point is that the problem of over-population will not be adequately solved until living conditions are better—until economic justice is a reality. "When an education is available for every boy and girl, and a family scale of living has been arrived at which will lift the economic status of the mother to the level where her intelligence places her, when marriages no longer take place in the early teens, but sports and play and studies in relation to environment occupy this period, we shall find that there is no longer a problem of over-production. Nature takes care of that. We need not work against her—we have only to work with her. The economic solution of the problem created by too high a birth rate is not only the best and fairest solution. It is the only solution that works."

The privileged classes are relatively less fertile, apart from their feeling about children or their use of contraceptives. "I do not think," says Mrs. Breckinridge, "that birth control is the factor which determines the smaller families of the so-called upper classes. On the contrary, I do not think the upper classes could have large families if they wanted them. . . . I affirm that, with exceptions, of course, the modern intelligent citizen is incapable of producing a large family. . . . I can truthfully say that for every one of the so-called upper classes who has come to me in dread of a family, at least twenty have come who wanted children or more children."

Loose Talk

"Words, words, words"—Hamlet's reply to a query as to what course of reading he was pursuing.

At the risk of being pronounced a "schizo-maniac," one is inclined to apply the answer of the melancholy Dane to

many dogmatic statements in books, magazines and newspapers—not to speak of the vocal utterances of public speakers, in and out of Congress. No names mentioned. One is only mildly surprised by questions from one's little granddaughter: "Grandpa, will you explain to me about marriage, divorce, adultery and birth control?" We did, without entering into the technic.

This only goes to show what bright young girls are reading and talking about from their personal observation of the daily papers and movies. It would be funny if it were not tragic.

The so-called "learned professions" only confuse the older ones and their elders, for we confirm the old saying: "Once a man, twice a child." We criticise modern educators, theologians, interpreters of the law, forgetting that our own profession is not free from the taint of loose thinking and looser talking on subjects which should be made clear to the laity, who look to us for wisdom. We have gone far in instructing them in regard to cancer, tuberculosis and hygiene; why not go a step further and "lay our cards on the table," confessing that we are still only groping for the truth? "The truth shall make you free," said the Great Teacher, and we are still bound.

We have no patience with the prevailing pessimism and firmly believe that life is still worth living, that our heaven, or hell, begins here as we choose to make it, and that the world is growing better. We would urge on our own profession the fact that we should be the pioneers, and not the obstacles in the search for truth. Let it not be said of us: "Our words fly up, our thoughts remain below."—H. C. C.

Contraception Plus Abortion

Rongy (*American Medicine*, July, 1931) estimates the number of criminal abortions occurring annually in this country at 1,250,000, at a cost to American women of at least $100,000,000. He asserts that in New York and Chicago the number of criminal operations exceeds the total number of births. This expert sees contraceptive methods as the remedy against this wretched state of affairs, while admitting some of them to be ineffective and uncertain. The truth, of course, is that none will certainly and invariably work. As Mr. Mencken shrewdly observes, "The factor of error in even the best of them is at least 1 per cent—and that is enough to keep any trusting woman up to the limit of human fecundity."

Birth regulation will never be impressive under *present* contraceptive methods without recourse to abortion. The "abortoriums" of the Soviets are a realistic, nonsentimental recognition of this fact.

The problem is much the same everywhere. In England the increased frequency of abortion, as noted in the medical literature, is likewise supplementing contraception as a factor in the falling birth rate.

Contemporary contraception and abortion are natural complements.

Intracranial Hemorrhage in New Born

1. Long second stage of labor, precipitous delivery, and difficult obstetric procedures are the chief causes of intracranial hemorrhage.
2. Prenatal health of the mother and hemorrhagic disease of the newborn do not seem to be important causative factors.
3. History of delivery, clinical symptoms, and lumbar or cisternal puncture are the essential points of diagnosis.
4. Repeated drainage of spinal fluid with relief of increased pressure is a most valuable means of treatment. Equally essential is good nursing and feeding care.
5. Preventive measures consist in skillful obstetric procedures, the use of carbon dioxide and oxygen for resuscitation, or the Drinker Respirator, and the transfusion of whole blood intramuscularly in all cases of possible hemorrhage.—Tyson and Crawford, *Am. J. of Ob. & Gyn.*, May 1931.

Miscellany

The Corinthian College

(Preliminary announcement)

It was suggested last month in these pages, with more or less plausibility, in the course of a review of Dr. Helena Wright's book, *The Sex Factor in Marriage*, that a Corinthian College, new style, be established in New York. Such schools once flourished in ancient Corinth. In them were taught the arts of love. Since Dr. Wright contends that sexual intercourse is an art, and not a natural thing, and since many marriages go upon the rocks because of "sexual illiteracy," why not a college with a new type of curriculum adapted to modern necessities in the domestic sphere? It would seem to be the *duty* of the highly "literate" to educate their unfortunate fellow citizens. What this country needs is not so much a good five-cent cigar as a Corinthian College, to be chartered by the Regents of the University. We venture to suggest that the faculty of such a college should be organized about as follows:

1. President of the College and incumbent of the Sanger Professorship of the Theory and Practice of the Marital Sex Arts.
2. Dean of Women and incumbent of the Professorship of the History of Licit Venery.
3. Dean of Men and incumbent of the Clinical Professorship of Love in the Marital Sphere.
4. Hollywood Professorship of Cinematography as Applied to the Pedagogy of Marital Erotics.
5. D. H. Lawrence Professorship of the Literature of Conjugal Love.
6. D'Annunzio Professorship of Advanced Domestic Erotology.
7. Malthus Professorship of Birth Control.
8. Wright Professorship of the Postural Technics of Marital Coitus.
9. Stopes Professorship of Domestic Harmonics and the Prophylaxis of Monotony in Wedlock.
10. Aldous Huxley Professorship of Domiciliary Sexology.
11. Instructor and Demonstrator in Contraceptive Technics.
12. Instructor and Demonstrator in Manikin Mechanics.

Contemporary Progress

(*Concluded from page 298*)

series was 5 per cent.; in the 198 cases operated by the author's method, 3 per cent. Pulmonary embolism gave the highest maternal mortality rate, 1.19 per cent. But in a series of 53 classical Cesarean sections performed by the author, the maternal mortality from pulmonary embolism was 3.7 per cent. Pulmonary embolism is evidently a relatively frequent complication of Cesarean section, and this should be considered in determining the indications for the operation. The gross fetal mortality was 5.9 per cent.; 4.5 per cent. with the author's operation. The author has found that cervical Cesarean section may be repeated with ease; one woman was delivered six times by this method. In repeated operations no intestinal adhesions were found. Eleven women had 14 deliveries by the normal route following cervical Cesarean section with normal puerperium in all. With cervical Cesarean section an efficient test of labor may safely be allowed in border line cases, thus allowing a number of women to deliver themselves through the pelvis without operation.

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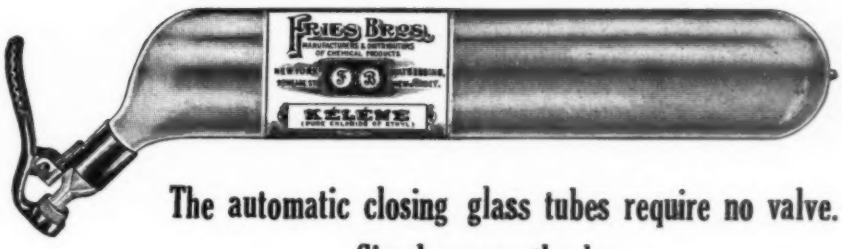

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Mellin's Food . . 4 level tablespoonfuls
Water (boiled, then cooled) **. 16 fluidounces**

ACCEPTED AMERICAN MEDICAL ASSN. Committee on Foods

The usual custom is to give one to three ounces of this mixture every hour or two until the stools lessen in number and improve in character. The food mixture may then be gradually strengthened by substituting one ounce of skimmed milk for one ounce of water until the amount of skimmed milk is equal to the quantity of milk usually employed in normal conditions. Finally the fat of the milk may be gradually replaced, but as milk fat is likely to be digested with much difficulty after an attack of diarrhea it is good judgment to continue to leave out the cream until the baby has fully recovered.

Further details in relation to this subject and a supply of samples of Mellin's Food sent to physicians upon request.

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The American Medical Association

The annual meeting of the American Medical Association held in Philadelphia from Monday to Friday, June 8-12, was most successful. The seven thousand doctors who came together from all parts of the Nation were fortunate in their opportunity to take a week of one of the most comprehensive graduate courses ever opened in all phases of medicine. Making the plans for the extensive series of meetings and exhibits was a monumental piece of work, for which credit is due to Dr. Olin West, Secretary and General Manager of the American Medical Association, Dr. Paul Leech, Director of Scientific Exhibits, and Mr. Will C. Braun, Director of Technical Exhibits.

The meetings received a large amount of notice in the newspapers of every state, for the Associated Press featured every phase of the events, especially those of a spectacular nature. If the reporters erred on the side of enthusiasm and overstatement, they at least conformed to the general facts related to them by the physicians and research workers. For example, the description of the effects of an extract of the cortical substance of the adrenal glands reported by Dr. Rowntree of the Mayo Clinic, as a remedy for Addison's disease, was printed by the Philadelphia *Public Leader* under the headlines "New Cure for Fatal Malady revealed by Scientists. Doctors astounded by the description of mysterious substance routing Addison's disease. Funds for further research urged." But the disease and the remedy were described in terms of scientific clearness and modesty. Every day the newspapers carried news of the results of researchers which educated the general public regarding methods of medical investigation and progress. No medical meeting ever received a greater amount of recognition or more truthful notices.

The American Medical Association meeting was housed in the new Municipal Auditorium of the City of Philadelphia, which opened its doors just in time for the sessions. The Auditorium is located on 34th Street beside the buildings of the University of Pennsylvania. Each of its two lower floors consists of a great room in which the exhibits were shown; while the scientific sessions were held in the rooms of the size of banquet halls of large hotels. Philadelphia's Auditorium was ideally suited to all phases of the meetings.

The meetings of the American Medical Association consisted of four features:

1. The House of Delegates.
2. The Scientific Sessions.
3. The Scientific Exhibits.
4. The Technical Exhibits.

The House of Delegates met in the Hotel Benjamin Franklin and discussed problems of administration, among them the old subjects of prohibition, state medicine, and the medical treatment of veterans of the late war.

New York was represented by its full quota of fifteen delegates, and Dr. John A. Card came within a few votes of being elected vice-speaker.

The scientific sessions were of special interest and were unusually well attended because pains had been taken to secure well-known speakers and to assure their being heard. The larger meeting rooms were equipped with sound amplifiers so that the speakers were heard by everybody in the halls. The acoustics of the large meeting place of the Pediatrics Section were well-nigh perfect; but there was some complaint of inability to hear well in some of the smaller halls, especially when the speakers were dull and prosy, as were a few of the impromptu discussors.

The papers read will be served in the *Journal of the American Medical Association* as medical feasts throughout the year.

The feature of the greatest practical value was the scientific exhibits. These exhibits have always been prominent in the American Medical Association meetings, but this year the medical schools, laboratories, and research hospitals sent their best men and lecturers to explain the exhibits to any doctor who cared to stop at their booths. Moreover, the managers of the exhibits enforced the rule that every booth should have a demonstrator constantly present. Some of the most noted clinicians and research workers in the land were ready to talk informally, face to face, with any doctor who chose to stop at their booths. The effect of this intimacy will doubtless be that the great number of doctors who thronged the exhibits hall carried away friendly impressions of the medical leaders of all parts of the land.

Over two hundred exhibits were shown covering every phase of medicine, even to an abscess of the tooth of a saber-toothed tiger that lived one hundred thousand years ago.

The technical exhibits were of equal interest and value with those of the scientific departments. Here the manufacturers of everything needed in medicine showed their wares and explained their use. To see the newer instruments and apparatus and hear their use explained in the treatment of disease was of as much practical importance and value as to learn about the disease from the scientific exhibitors.

The managers of coming sessions of the American Medical Association will doubtless repeat the up-to-date features of this year's meeting; and if they do, the glowing reports of the seven thousand medical visitors of this year will inspire an attendance of double that number next year.—*N. Y. State J. of Med.*, July 1, 1931.

New York Post-Graduate Medical School and Hospital

In accordance with the agreement between the New York Post-Graduate Medical School and Hospital and Columbia University, effective July 1st, by which the former becomes the Post-Graduate School of Medicine of Columbia, an Administrative Board of Post-graduate Studies in Medicine has been established by President Nicholas Murray Butler, on which will be represented members of the governing body of the University, the undergraduate medical school and the postgraduate school of medicine.

Under the terms of the affiliation, this Board will have general oversight and control of all postgraduate instruction in medicine offered by the University, whether at the Medical Center, the Post-Graduate Medical School or elsewhere in the city, and is constituted as follows: Dean Willard C. Rappleye, Chairman; Dr. Linsly R. Williams, Dean Howard Lee McBain, Director James C. Egbert, Dr. Walter W. Palmer, Dr. James W. Jobling, Dr. Frederick Tilney, Dr. Arthur F. Chace, Dr. Herman C. Mosenthal, Dr. Howad F. Shattuck, Dr. Edward H. Hume, Dr. Harry S. Dunning, Dr. Lewis F. Frissell, and Mr. Frank D. Fackenthal.

On nomination of President Butler, the Trustees of the University have appointed Dr. Edward H. Hume, as Director, and Dr. Alan R. Anderson, as Associate Director of the New York Post-Graduate Medical School.

This incorporation of the New York Post-Graduate Medical School into the teaching system of Columbia University as its post-graduate school of medicine, distinct from the under-graduate school, carries into fruition, after some forty-nine years, the ambition of the seven founders of the Post-Graduate who resigned from the Faculty of the New York University upon the refusal of the trustees to grant them a separate building for post-graduate instruction and, early in the year 1882, organized the present New York Post-Graduate Medical School and Hospital.

Dr. D. B. St. John Roosa, the leader of the small group of pioneers in graduate medical education, and first president of the institution he helped to found, in his inaugural address in November, 1882, pointed out that while temporarily undertaken in an independent institution, this type of medical education rightly belonged with other forms of professional instruction, within a university, and closed with the forecast, "the time will come when this institution will be included within a great university." July first of this year will see this prophecy fulfilled.

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Shakespeare wrote of the caprices of sleep, and the anguish of those whom it eludes: "Cans't thou, O partial sleep, give thy repose to the wet sea-boy in an hour so rude and in the calmest and most stillest night . . . deny it to a king?"

The echo of this complaint, couched in one form or another, is heard daily by almost every physician, from patients who reflect the strain imposed by the accelerated modern tempo of living. To them the balm of sleep is denied. They tell of sleepless nights, or of interrupted and restless slumber which leaves unfulfilled its duty of restoring strength to an exhausted body. The need for relaxation, for tranquil sleep, is perhaps more noticeable now than ever before.

Inability to sleep may be due to many causes: hypertension, mental strain, nervousness, hyper-thyroidism, drug addiction, alcoholism, or other factors.

Amytal (iso-amyl ethyl barbituric acid), a product of the Lilly Research Laboratories, meets the need for hypnosis and sedation in a wide variety of cases. Since its introduction to the medical profession a few years ago, Eli Lilly and Company report that there has been an ever-increasing demand for this safe and satisfactory hypnotic and sedative. Recently, in response to the demand for a smaller dosage to produce sedation in ambulatory cases, the Lilly Laboratories made available Tablets Amytal, Half-Strength, in ¾ grain tablets.

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MEDICAL BOOK NEWS

Edited by WILLIAM HENRY DONNELLY, M.D.

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AUGUST

REVIEWS

Regulation of Size as Illustrated in Unicellular Organisms.

THE REGULATION OF SIZE AS ILLUSTRATED IN UNICELLULAR ORGANISMS. By Edward F. Adolph, Ph.D. Springfield, Charles C. Thomas, 1931. 233 pages, illustrated. 8vo. Cloth, $4.50. (General Biology Series, Vol. 1).

The practicing physician concerned with the relief of human suffering, after years of contact with diseased states, establishes a rather interesting attitude toward the world of parasites and infecting organisms. To him, these organisms merely represent a vast horde of invading enemies continuously preying upon the human race. To Dr. Adolph, these unicellular organisms take on more vital characters, composed of living protoplasmic tissue and physiologically active. Much time has been given to the study of the behavior of such protozoa as the paramecium, and bacteria as Bacillus coli. These protoplasmic individuals live in our world, perform the vital physiological function of growth and reproduction and follow definite biological laws resembling those which govern any other form of animal life. The author devotes the whole monograph to a discussion of the size of unicellular organisms and the chemical, physical and biological laws which govern them. On the face of it, it would appear that the book represents a highly academic survey, but the reviewer can see the application of these laws to the regulation of size of every individual cell in the human body.

Any cell in the human body is really a unicellular organism with a nuclear and cytoplasmic structure, a cell membrane and a surrounding medium favorable to its life. The size of this cell is governed by laws of inheritance characteristic to itself, influenced by electrolytes, temperature, and oxygen tension of the medium in which it floats. Truly applicable are these laws to the biological characteristics of pathogenic bacteria and neoplastic cells. Further elucidation of investigations of this highly theoretical nature must throw greater light on the character of diseased states and eventually become an applied science. The book should appeal particularly to the morphologist and bacteriologist.

WILLIAM S. COLLENS.

Handbook of Pediatric Procedures.

HANDBOOK OF PEDIATRIC PROCEDURES. By Francis Scott Smyth, M.A. & Edith I. M. Irvine-Jones, M.B., New York, The Macmillan Company, 1930. 212 pages, 12mo, Cloth, $2.50.

This little book has the virtues and vices of the Compend.

If one has given the subject good study with more discussion and wishes simply certain exact figures and methods in brief it will do well, but it must not be looked upon as a substitute for a major text book.

The advice is reliable.

W. D. L.

Leber Kochbuch.

LEBER-KOCHBUCH: Anleitung und Kochrezepte zur praktischen Durchführung der Leberdiät bei Blutkrankheiten. By Dr. R. F. Weiss. 2 . . . Aufl. München, Aerztlichen Rundschau Otto Gmelin, 1931. 60 pages. 8vo. Cloth, Marks 2.40.

With the widespread use of liver in pernicious anemia and in secondary anemias the difficulty often arises of how to render palatable to the patient, the large amounts of liver necessary for a long period of time. This problem is taken up by the author in his brief monograph. After touching upon the principles of liver therapy and its effects, he describes fully and simply a practical method of carrying out the diet, which is very similar to the original Minot and Murphy diet. The noteworthy part of the book is the collection of a goodly number of recipes for the palatable preparation of liver in its raw and cooked forms and also in the form of desserts and drinks. This book should be of especial value to the patient who has to be on a liver diet and to the hospital dietitian.

SAMUEL ROSENFELD.

Heart Disease.

HEART DISEASE. By Paul Dudley White, M.D. New York, The Macmillan Company, 1931. 931 pages, illustrated. 8vo. Cloth, $12.00. (Macmillan Medical Monographs.)

This volume, the book of the year not alone in cardiology but in internal medicine, represents White's observations and deductions concerning some 12,000 heart cases that he has studied during the past fifteen years.

The plan of the book, in brief, is four parts, devoted seriatim to: 1, History and Examination; 2, Etiology and Types of Heart Disease; 3, Structural lesions, and 4, Functional Disorders. There is no section on Therapeutics, this being incidentally discussed as occasion arises.

A delightful feature is the inclusion of *extended quotations from the original works of various clinicians.* This is a great joy to physicians interested in the history of diseases, the dates of medical discoveries, and the establishment of new methods of study and research. Such excerpts are 1-page quotations from Cheyne and from Stokes on the respiratory type bearing their conjoint name, 2-page quotations from Adams and from Stokes on Adams-Stokes syndrome, from Auenbrugger on percussion and from Laennec on auscultation, paragraphs from Waller and from Einthoven on electrocardiography, from Wenckebach on dominant rhythm; and similar quotations from Heberden, Rothberger, Winterberg, Bristowe, Mackenzie, Reynaud, Broadbent, Pick, Ewart, Williams, Roger, Herrick, Osler, Fallot, Cabot, Flint, Corrigan, Harvey, Hales, Lewis, Steell, Waller, Aschoff, Brauer, and of course, Wm. Withering. These names are so permanently fixed in cardiology as to make these quotations from the literature most valuable.

It is hardly necessary to say that in such a treatise of 685 pages of text cardiac conditions are described with great thoroughness. The author's readable style and his frequent references to his personal experience add greatly to the attractiveness of the volume.

He emphasizes the value of a careful history and in his introduction (p. 4) states that he customarily allows a full half-hour or longer for the unfolding of the story of the patient. His record form of six pages is of aid in charting the total facts of the case and is reproduced complete.

Precordial hyperesthesia over the left breast he has found less often associated with heart disease than is generally thought.

I would express regret at the substitution of new nomenclature terms for right and left bundle branch block that simply reverse the "right" and "left" (p. 258). In the minds of thousands of physicians the interpretation of the electrocardiogram is shrouded enough without adding this confusing albeit proper correction.

There are two other notable outstanding features of the work: a *bibliography* of 188 pages, chapter by chapter without text reference numbers. In regard to coronary occlusion, for instance, 56 references are given. In so extensive a bibliography one must choose between an alphabetical and a chronological arrangement. Some readers would prefer the latter, but White's adoption of an alphabetical listing makes easier the findings of a particular writer's contribution.

And pages 881-885 are devoted to the *listing of unsolved cardio-vascular problems.* This is unusual and tremendously interesting, since it concentrates clinical attention on heart matters of the immediate and ultimate future.

The subject index of 44 pages is complete, even to the inclusion of the bibliography page references.

Both White and his medical audience are to be enthusiastically congratulated: White, that so fine a volume has come from his talented pen, and ourselves, that so splendid a contribution is now in our hands.

FRANK BETHEL CROSS.

Calcium Metabolism and Calcium Therapy.

CALCIUM METABOLISM AND CALCIUM THERAPY. By Abraham Cantarow, M.D. Philadelphia, Lea & Febiger, 1931. 215 pages, illustrated. 8vo. Cloth, $2.50.

This book is a timely publication on the subject of Calcium, because its metabolism and therapy is not widely familiar to the general practitioner.

Dr. Cantarow sets forth in this book all the available knowledge and data concerning Calcium, its metabolism, therapeutic indications and mode of administration.

The book contains a chapter on normal calcium metabolism, abnormal calcium metabolism and calcium therapy. Each chapter is written clearly and concisely, giving the reader all the information he may seek on the subject. It is highly recommended to the student, general practitioner and the specialist.

S. J. COHEN.

Pye's Surgical Handicraft.

PYE'S SURGICAL HANDICRAFT: A Manual of surgical manipulations, minor surgery, and other matters connected with the work of house surgeons and surgical dressers. Edited by H. W. Carson, F.R.C.S. Tenth edition. New York, William Wood & Company, 1931. 641 pages, illustrated. 8vo. Cloth, $7.00.

This is the tenth edition of a compendium of surgery in which the treatment of syphilis and gonorrhea have been included. The fact that valuable space has been devoted to the description of the proper application of leeches serves to classify this volume adequately.

GEO. WEBB.

Crippled Children.

CRIPPLED CHILDREN: Their Treatment and Orthopedic Nursing. By Earl D. McBride, B.S., M.D. St. Louis, The C. V. Mosby Company, 1931. 280 pages, illustrated. 8vo. Cloth, $3.50.

This book appears to fill a long felt want among nurses in orthopedic hospitals, visiting nurses on orthopedic cases, social workers dealing with orthopedic problems, and doctors who have the instruction of these groups in their care.

The first section of the book goes into considerable detail with regard to orthopedic equipment in general, instruments, operating room technique for nurses and doctors and covers the physical requirements for taking care of the crippled child.

A section is also devoted to plaster of Paris technique, adhesive strapping, traction and braces. It is interesting to note that such details as the proper trimming of a plaster for relief of traction is gone into and the author properly advises splitting the plaster longitudinally rather than trimming the edges.

The remainder of the book covers in a clear and concise manner the more common and some of the rarer maladies which produced crippling and require orthopedic care. Symptoms and signs are dealt with briefly and what is more important the results of treatment and the post operative nursing are carefully appended to the discussion of each disease.

The reviewer feels that this book should be part of the library of every orthopedic hospital certainly, and of hospitals having orthopedic cases within their walls. It would serve here the nurses, internes, social workers and those who instruct these groups.

MAX S. RABINOWITZ.

Abhandlungen aus dem Gesamtgebiete der Hygiene.

ABHANDLUNGEN AUS DEM GESAMTGEBIETE DER HYGIENE. Hrsg. von Dr. R. Grassberger. Hefts 1 to 6. Leipzig und Wien, Franz Deuticke, 1928-29. 78 pages, illustrated. 8vo. Paper, (Various prices).

Consisting of six booklets, treating

(a) Of the effect of adventitious odors and aromatics upon the ordinary illuminating gas in the home: detection of the gas in the homes of consumers with and without artificial aromatic chemicals, etc.;

(b) of the chlorination of drinking water;

(c) of the adulteration of milk and other foods; the difficulties of legal procedure in the prosecution of offenders, etc.;

(d) of the relative advantages of various culture media in the biological laboratory;

(e) of the beneficial effect of the thermic baths of Gastein, probably due to their contents of radium and thorium;

(f) of the scientific management of thermic baths, containing radium, etc., as practiced in Gastein, Austria.

These treatises are highly technical, but should prove interesting reading to the scientists, pursuing studies in the various fields discussed in them.

L. KOEMPEL.

Geriatria.

GERIATRIA. Prevención y tratamiento de las enfermedades de la vejez. Por Malford W. Thewlis, M.D. Primera edición Española. Barcelona, Salvat Editores, S. A., 1931. 348 pages. 8vo.

This is the first Spanish edition of Dr. Thewlis' second English edition of Geriatrics (Diseases of Old Age). Salvat Editores are to be congratulated on their work. The translation carries out the original ideas in every detail and the printing of the volume is excellent.

A. C. J.

Artificial Sunlight.

ARTIFICIAL SUNLIGHT Combining Radiation for Health with Light for Vision. By M. Luckiesh, D.Sc. New York, D. Van Nostrand Company, Inc., 1930. 254 pages, illustrated. 8vo. Cloth, $3.75.

This new work on artificial sunlight is a philosophic and scientific dissertation on that subject by one of the greatest authorities in that field. Its purpose is to get at the source of the various artificial lights, to decompose them into their various constituents, and then to compare them qualitatively and quantitatively with each other and with natural sunlight respectively.

Luckiesh has made calculation to determine the safe limit of artificial sunlight without causing such harmful effects as conjunctivitis. He has included splendid diagrams of the comparative lengths of the various sources of spectral energy. He has investigated the absorptive qualities of various types of glass and has therefore made it possible to logically interpret their therapeutic qualities. He discusses the various methods for measuring the quantity and quality of the various absorption bands of the spectrum, and many other phases of heliophysics which should serve to further elevate the science of heliotherapy high above its former level of blind empiricism. This book should serve as a welcome addition to the physician's library.

EMANUEL KRIMSKY.

Treatment of Children's Diseases.

THE TREATMENT OF CHILDREN'S DISEASES with special formulas and drugs for childhood, and a short diagnostic summary of each clinical picture. By F. Lust, M.D. Authorized translation of the sixth German edition with additions by Sandor A. Levinsohn, M.D. Philadelphia and London, J. B. Lippincott Company, 1930. 513 pages. 8vo. Cloth, $8.00.

Were there no other book on the subject, in the English language, this one would supply a considerable amount of information of value, but we do think it has been done better for us before.

Feeding and general advice is in approximate accord with our practice but offers little in advance or of useful variety. Germany must be at least as badly drug ridden as we, for the number of proprietaries listed in the author's personal pharmacopeia is legion.

The make up of the book is somewhat odd; there is a section on Therapeutic Technique, in which the descriptions are rather inadequate and contains, *consecutively*, such titles as Blood Transfusion, Breast Shields, Brine Baths, Caloric Values of Certain Foods.

Our opinion is that the book is more interesting than useful to an American Public.

W. D. L.

Cancer and Scientific Research.

CANCER AND SCIENTIFIC RESEARCH. By Barbara Holmes, Ph.D. (London, The Sheldon Press), New York, The Macmillan Co. (c. 1931). 160 pages, illustrated. 12mo Cloth, $1.50.

This new book on cancer and scientific research should prove to be an invaluable guide for the layman seeking the truth about cancer.

The history of cancer, its distribution, its relation to various diseases and occupations, its experimental production in animals, as well as the worrisome factor of inheritance as a possible cause are well discussed in a most convincing and scholarly style.

It is largely by such type of reading matter that one can hope to offset much of the dangerous propaganda about cancer foisted on a gullible public by newspapers and other unreliable sources.

EMANUEL KRIMSKY.

Der electrische Unfall.

DER ELEKTRISCHE UNFALL. By Dr. Stefan Jellinek. 3. Aufl. Leipzig & Wien, Franz Deuticke, 1931. 168 pages, illustrated. 8vo. Paper, Marks 8.

This is the third edition of a very instructive book dealing with all phases of electrical injuries. Both the pathological tissue changes and the therapeusis of electrical injuries as well as first aid in "electrical" accidents are discussed in detail. A great deal of attention is paid to the technical side of the problem with a discussion of various preventative measures.

GEO. WEBB.

Letters of Dr. Betterman.

THE LETTERS OF DR. BETTERMAN. By Charles Elton Blanchard, M.D. Youngstown, Ohio, Medical Success Press, 1931. 157 pages, illustrated. 8vo. Paper, $1.00.

Dr. Blanchard has written a series of letters to his "dear son"—the young physician—on how to practice medicine ethically. The average practitioner can well surmise as to what he has to say to the young doctor. The fact remains, however, that the recent graduate is too restless to listen to such good advice; whereas the hardened practitioner has learned of all these evils through daily experience and will readily agree with the counsels offered.

EMANUEL KRIMSKY.

Mental Measurement of Pre-School Children.

MENTAL MEASUREMENT OF PRE-SCHOOL CHILDREN: with a Guide for the Administration of the Merrill-Palmer Scale of Mental Tests. By Rachel Stutsman, Ph.D. Yonkers-on-Hudson, New York, World Book Company, 1931. 368 pages, illustrated. 8vo. Cloth, $2.20. (Measurement and Adjustment Series.)

The mental measurement of pre-school children is important because the medical and educational treatment of the defective or backward child yields a far greater return in the earlier than later years. The foundation has been laid by Gesell, Goodenough, and Kuhlman.

The author first discusses the importance of tests for pre-school children to recognize early, mental defectiveness; secondly, to know how much responsibility may be placed on the child in her treatment; thirdly, early recognition of speech defects; finally as an aid in home training. The criteria for tests for pre-school children are stated. The book is divided into four main parts:

1. Problems and History of the Mental Testing of Preschool children.
2. The Merrill-Palmer Research.
3. Guide for administering the Merrill-Palmer Scale.
4. Illustrative case studies.

There is an extensive bibliography.

The book is a valuable contribution toward the individual evaluation of the pre-school child. STANLEY S. LAMM.

Handbook on Diseases of Children.

HANDBOOK ON DISEASES OF CHILDREN including Dietetics and the Common Fevers. By Bruce Williamson, M.D., M.R.C.P. New York, William Wood & Company, 1931. 290 pages, illustrated. 12mo Cloth, $3.50.

This brief work of 290 pages has much of value in the way of summary of fundamentals.

It is written from the English point of view and the difference between the American and English point of view is well illustrated in the treatment of the subject of pneumonia.

There are many things that are exceptionally good, but we would call attention to the chapters on the heart, which are clearly expressed, up to the minute, and in accord with the best modern thought on this subject.

The discussion on the heart alone makes the book valuable, as a reference work, and makes it desirable to have available in one's library. ARCHIBALD D. SMITH.

American Physicians and Surgeons.

AMERICAN PHYSICIANS AND SURGEONS: A Biographical Directory of Practicing Members of the Medical Profession in the United States and Canada including supplements in which are listed and classified the leading hospitals, sanitariums and health resorts of both countries. Prepared by James Clark Fifield. Minneapolis, The Midwest Company, (1931). 1737 pages. 4to. Cloth, $30.00.

The aim of the editor of this biographical directory of practicing members of the medical profession in the United States and Canada is to list as many as possible of the "best" men. Supplements are included in which are listed and classified the "leading" hospitals, sanitariums and health resorts of both countries. This dictionary constitutes a kind of medical Burke's Peerage and signalizes the birth of a new aristocracy. And only the higher nobility are given the accolade of knighthood. There will be many heartburnings over the omissions. One reason given in the Foreword for the obvious omission of many names (and the remarkable inclusion of others!) is that final decisions as to who should go on the preliminary lists were based on a decided weight of opinion of the doctors themselves—surely an adequate alibi. It will, however, seem significant to some that "traveling representatives, especially trained to the work, . . . visited the important cities and centers in each State of the Union and in the Provinces of Canada, and . . . made personal investigations as to the standing and repute of doctors in each locality." The arrangement of doctors in each State and Province is according to cities in their alphabetical order. Each geographical division is preceded by an Index in which the doctors are listed, first according to specialty and second according to the city in which they practice. This book is offered for sale to members of the profession, good and bad alike, and whether listed or not. Those not eligible are expected to buy it, since even members of the medical profession may, for $30, learn "to use it as a guide to aid them in securing competent, safe and reliable medical service." We learn from the pages of this work that there are at least three dependable general practitioners in Albany, three in Manhattan, and four in Brooklyn. This type of directory might be useful to a Chicagoan attacked by mastoiditis in Montgomery, Alabama, provided his hotel or the public library of the town possessed a copy, but we are really at a loss why any practitioner should invest in it so long as the A. M. A. Directory is available at $12 if subscribed for in advance of publication. A. C. J.

Deep X-Ray Therapy in Malignant Disease.

DEEP X-RAY THERAPY IN MALIGNANT DISEASE: A report of an investigation carried out from 1924-1929 under the direction of the St. Bartholomew's Hospital Cancer Research Committee. By Walter M. Levitt, M.B., D.M.R.E. London, John Murray (c. 1930). 128 pages, illustrated. 8vo. Cloth, 10/6.

This volume represents the report of the Roentgen and Radium Therapy as carried on during the first five years (1924-1929) period of the Cancer Research Committee at St. Bartholomew's Hospital, London.

The author, who served as Radiotherapist to this Committee, describes the operation of this newly created division, discusses the methods of application of the *x*-ray and Radium and thereby analyzes the results obtained in the 319 cases of malignant disease treated. A brief but interesting discussion is offered on certain controversial points pertaining to this form of treatment. The conclusions are well drawn, the author realizing the fact that insufficient time has elapsed to accurately evaluate the work.

The book is of decided interest as a study of results of Radiation therapy and consequently should be of interest and service to the Radiotherapeutist and to him who refers these cases to the latter specialist. R. A. R.

Nutrition and Diet in Health and Disease.

NUTRITION AND DIET IN HEALTH AND DISEASE. By James S. McLester, M.D. Second edition. Philadelphia and London, W. B. Saunders Company, 1931. 891 pages, illustrated. 8vo. Cloth, $8.50.

The first edition of this book was very well received, as in addition to dietary measures it included much information in matters of physiology and pathology and contained much material of interest usually found in a book on the practice of medicine.

In this edition the facts concerning vitamins, deficiency diseases, toxemias of pregnancy, obesity and gout will be found and some sections have been re-written as those dealing with enzymes, protein requirement, and diseases of the blood.

An extensive bibliography and tables and charts of a general nature are included. The author writes clearly and presents many of the basic features of medicine with simplicity and thoroughness. W. E. MC COLLOM.

Dangerous Drugs.

DANGEROUS DRUGS: The World Fight Against Illicit Traffic in Narcotics. By Arthur Woods. New Haven, Conn., Yale University Press, 1931. 123 pages. 8vo. Cloth, $2.00.

This is a clearly written presentation of facts about the traffic in drugs, principally morphine, heroin and cocaine. The author presents the history and present status of drug addiction with a very good description of the effects of the drugs upon the users. One chapter deals with the "dope fiend" in society, one with what has been done to stamp out the evil, one with the traffic in narcotic drugs and in another the writer states what he believes to be the remedy.

Even the control of the acreage devoted to the production of the opium poppy and the coca leaf would have to be supplemented, in the opinion of the author, by two measures. One, that the manufacture of narcotics must be controlled in each country in such a way that the drug can not leak out, and the other by control of international traffic. Every nation would adopt and enforce the import and export certificate system recommended by the league of nations.

The clearness with which the problems are presented and practical nature of the book make it a valuable contribution. W. E. MC COLLOM.

BOOKS RECEIVED

Books received for review are acknowledged promptly in this column; we assume no other obligation in return for the courtesy of those sending us the same. In most cases, review notes will be promptly published shortly after acknowledgment of receipt has been made in this column.

RESISTANCE TO INFECTIOUS DISEASES. An exposition of the biological phenomena underlying the occurrence of infection and the recovery of the animal body from infectious disease, with a consideration of the principles underlying specific diagnosis and therapeutic measures. By Hans Zinsser, M.D. Fourth edition. New York, The Macmillan Company, 1931. 651 pages, illustrated. 8vo. Cloth, $7.00.

DIABETES: Its Treatment by Insulin and Diet. A Handbook for the patient. By Orlando H. Petty, A.M., M.D. Fifth edition. Philadelphia, F. A. Davis Company, 1931. 231 pages, illustrated. 12mo Cloth, $2.00.

INSOMNIA: An Outline for the Practitioner. By H. Crichton-Miller, M.A., M.D. London, Edward Arnold & Company; New York, Longmans, Green & Company, 1930. 172 pages. 8vo. Cloth, $4.20.

THE SEX FACTOR IN MARRIAGE. A book for those who are or are about to be married. By Helena Wright, M.B., B.S. New York, The Vanguard Press, 1931. 122 pages. 12mo Cloth, $2.00.

THE TREATMENT OF INJURY BY THE GENERAL PRACTITIONER. By Clay Ray Murray, M.D., F.A.C.S. Two volumes. New

York and London, Harper & Brothers, 1931. 412 pages, illustrated. 12mo Cloth, $5.00. (Harper's Medical Monographs).

TEXTBOOK OF HISTOLOGY for medical and dental students. By Eugene C. Piette, M.D. Philadelphia, F. A. Davis Company, 1931. 466 pages, illustrated. 8vo. Cloth, $4.50.

MEDICAL JURISPRUDENCE. By Alfred W. Herzog, Ph.B., A.M. Indianapolis, Bobbs-Merrill Company, 1931. 1051 pages. 4to. Cloth, $15.00.

IMMUNITÄT, ALLERGIE UND INFEKTIONSKRANKHEITEN. Hrsg. von Rudolf Degkwitz, et al. Schriftleitung, Dr. Fr. Michelsson. Band III, Heft 1-3. München, Aerztlichen Rundschau Otto Gmelin, 1931, pp. 1-32. 8vo. Paper, Quarter—Marks 5.00; Individual numbers—Marks 2.00.

AN INTRODUCTION TO BIOCHEMISTRY. By Roger J. Williams, Ph.D. New York, D. Van Nostrand Company, Inc., 1931. 501 pages, illustrated. 8vo. Cloth, $4.00.

EGYPT: The Home of the Occult Sciences with Special Reference to Imhotep, the Mysterious Wise Man and Egyptian God of Medicine. By T. Gerald Garry, M.D., M.Ch. London, John Bale, Sons & Danielsson, Ltd., 1931. 93 pages. 12mo Cloth, 7/6.

CLINICAL DIETETICS: A Textbook for Physicians, Students and Dietitians. By Harry Gauss, M.S., M.D. St. Louis. The C. V. Mosby Company, 1931. 4.9 pages, illustrated. 8vo. Cloth, $8.00.

AN INTRODUCTION TO GYNECOLOGY. By C. Jeff Miller, M.D. St. Louis, The C. V. Mosby Company, 1931. 327 pages, illustrated. 4to. Cloth, $5.00.

MEMORANDA ON MEDICAL DISEASES IN TROPICAL AND SUB-TROPICAL AREAS. (Fifth edition). London, His Majesty's Stationery Office: New York, British Library of Information. 1930. 300 pages, illustrated. 12mo Boards, $1.55. Postage extra.

Medical Responsibilities*

Two years ago, in accepting office, your President-elect said that he had no illusion as to the size of the task to be assumed when he should fill the office of President; and he has none now. He had no doubt as to the responsibility to be assumed; and it has been greater than he anticipated. He realized that the President should give something of himself to his office. Whether or not your President has done this, you are able to judge. Anyway, he has given all of his time.

Your President has an orientation now, unexpected in the beginning. The problems of medicine are greater than were thought; and their solution is not so easy. The power of tradition is better understood. Any solution involves a change from the customary way of doing things. The physician is conservative because he deals with a multiplicity of uncertain factors. His life is individualistic. He usually applies the same habit of thought to problems of relationships that he applies in directions to a patient. Subconsciously, he thinks with problems in the way that he is accustomed to thinking of the problems of practice. He is not in the habit of having anybody tell him what should be done. Emotional resistance to a substitution of a new proposal for an existing one always appears. The sociological and psychological factor of vested interest influences the acceptance or rejection of an innovation. The minor part of vested interest is economic and the major part is disturbance of prestige and authority.

Medicine is the oldest profession in history. It is older than the civil law. It is the only altruistic profession. It has always determined its own gratuities and contributions to human welfare. It is the only profession intimately associated with the primary instincts of mankind. For ages it has been the only hope of postponing the fear of pain and death. It is, therefore, closely interwoven with the social relations of mankind and inseparably related to the real needs of people Medicine is, therefore, a social function. It always has been a social function.

The time span of social change has usually been longer than the period of one human life, and during these intervals the profession of medicine developed its traditions. Nowadays something or other is taken into the everyday life of people about every ten years which changes the current of human relationships—the automobile, the radio, the influence of the World War, the present inter-relationship of all the countries of the world, the increasing density of population in the cities, the economic depression, and unemployment.

Go with me in thought into one of the European countries and realize that two and one-half million acres devoted to the production of food have in two years been increased to ten million acres with every indication that in two years more it will be increased to twenty-five million acres. This country alone can supply all that the markets of Europe will consume and certain products of America will be reduced to a domestic basis.

The World War changed many consuming countries into producing countries, and has led to world-wide over-production which may well continue. The present unemployment throughout the world may more or less continue. Hospitals and clinics with sufficient endowment may undertake the care of people who have not money to pay for modern treatment; or public opinion may devise an objectionable method of distributing the costs of the hazards of illness. Economic conditions may never again become as they were. Physicians cannot compete with basic economic disturbances any more than industry. Let me repeat that medicine is a social function intimately concerned with the general social condition of people. Whatever affects people economically will affect medicine economically.

Other factors enter into the situation. The public character of medicine and the general knowledge of what can be done to prevent disease have directed public expectation to the medical profession as the only competent body to develop organization for the administration of the known medical needs today. The profession of medicine is still influenced by the period when a physician was paid by gratuities. The general expectation still exists that under certain circumstances the doctor should give his services.

The world is full of examples of medicine's contribution to the social welfare of mankind. I am not sure that the profession of medicine would like to have this reputation disturbed.

Just as the science of medicine and its application to human ills advance and certain diseases come under control, in the same proportion a physician's work decreases unless he shifts his activities enough to make earlier diagnoses and earlier treatment a part of his work.

There are complexities of society today and enough general economic disturbance to slowly stimulate the state to take on its parental function for the care of the health of its citizens. Since health is an asset to the state and sickness a liability, it is the responsibility of government to take a hand in the solution of health problems not now being taken care of. If the medical profession will recognize that it is the burden of the state to supply certain equipment and certain facilities for the care of its citizens, and that it is the responsibility of the physician to supply the technical service, a partnership will be established which is both in the interest of the public and in the interest of the profession.

If the multitude of indications really show that this nation has reached the peak of its growth, and from now on will more or less approach the social conditions of other countries which caused the government of these countries to take a hand in the solution of relatively similar problems, then the profession of medicine and the leadership of public thought must consider the situation. Medicine cannot be allowed to abandon its historical, social, altruistic, personal relationship to individuals. Some method of rational control of the situation confronting medicine must be thought out.

The importance of health as a basic foundation for very effort in the world—war, industry, stability of government, civilization itself—is accepted by the thoughtful public and illustrated by the interest of governments over the world in health matters. The national study of the costs of medical care and medical service, and the study of child health are but examples.

The total health bill of this country is three per cent of the national income. The phyiscians of this country receive $750,000,000 per year. There are 120,000 working physicians in this country. They receive $6,250 on the average per year. This is the gross income and out of it they must provide their equipment for practice and transportation. The cost of a medical education today plus the value of the time to acquire it would, if invested at six per cent until the individual is fifty years old, allow him to retire and maintain himself and family for the rest of life without working. The average amount paid for medical service to physicians in this country is $6.25 per capita per year. Hospitals receive about the same amount per capita. The physician is not overpaid. Hospitals are not overpaid. The thinking public is grasping these facts. The general public will sooner or later acquire this information, also. The public, however, knows just about as much concerning this as our own men appear to know and whenever we say that we ought to educate the public as to the problems of medicine, we should add, and our own members also.

The medical profession, accepting certain fixed basic conditions as a guide to its relationships, has gone on quite well until social conditions began to change and complexities of society began to increase. The change from the time when social conditions remained about the same for more than one life time, to the present when they change about every ten years, makes necessary a constant readjustment of medical relationships. The assumption that there is nothing more in medicine than to fill its scientific storehouses, and that each generation of physicians will live amid essentially similar basic conditions as the generation before and the one to come, is for the first time in our history, false.

If there are any who do not yet see that there is a great change in social conditions, let me remind you that it is only about two generations since anyone had a bathtub; that the great increase in hospitals and their use and the phenomenal advance of the science of medicine are practically all within

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* William H. Ross, M.D., Brentwood, N. Y., in his presidential address at the annual meeting of the Medical Society of the State of New York, June 2, 1931, in Syracuse.

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New York, N. Y.

two decades; that the marvelous educational influence of radio is within one decade and of the automobile within a generation; and the scientists tell us that the ultra-violet light, that fascinating agent, is due for a more spectacular sweep into popular use than was expected of radio.

While I do not know that it is possible to work out the future problems of medical relationships except approximately, there is today in medicine an agency that was used in the civic affairs of Greece four thousand years ago. It has been used in industry, in all civic effort, and in the affairs of government. Considered as a medical agency it undertakes to bring opposing interests into conference, to find the common ground, to compromise differences, and to coordinate similar objectives into a cooperative undertaking. It limits waste, increases accomplishment, and defines leadership. We can, at least, find approximate solutions for problems if we adopt enough of the science of foresight.

Walter Brett Donham, in "Business Adrift," says: "The whole structure of the theory and practice of curative medicine on which such outstanding progress is being made is, when applied to the treatment of the individual, subject to just the same hazards as all efforts are to see into the future of medical relationships, and yet we continue to apply it when the individual is sick because useful results are possible."

Since we must accept this method of the application of the science of medicine, it should not be difficult to accept similar reasoning in the relationships of medicine.

Organized medicine assumes responsibilities today unthought of a generation ago,—education, legislation, and others. As a profession, medicine is doing more to meet public criticism today than any other profession. The welfare of future generations of physicians depends upon the correct handling of the problems of today.

Just as there is a world economic disturbance today about which very much is coming to be known, so there is a world disturbance in the relationships of medicine about which much is coming to be known. It involves the economics of medicine as well as the services of medicine. No one alone is big enough to raise an issue, and no one alone can adjust it. It must be a cooperative undertaking. In many respects the problem cannot be met by those untrained in economics. It will require an association with economists and statesmen in the ranks of medicine.

I have lived more or less with these thoughts, ideals, and facts for two years. The principles touched upon in this little address should not be forgotten until the truth is found.

"If you can dream and yet not make dreams your master,
If you can think and yet not make thoughts your aim,
If you can meet with Triumph and Disaster
And treat these two imposters just the same;
If you can make one heap of all your winnings
And risk it on one turn of 'pitch and toss';
And lose and start again at your beginnings
And never breathe a word about your loss;
If neither foe nor loving friend can hurt you,
If all men count with you, but none too much,
Yours is the Earth and everything that's in it."
—*N. Y. State J. of Med.*, June 15, 1931.

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Amertan in Treating Burns

A physician in the medical corps of the United States Army reported not long ago that there appeared to be a scientific basis for the use of ink in treating burns—a practice in vogue in the Philippines for many generations. It seems that most black inks are weak solutions of iron and tannic acid compound.

Research authorities now tell us that tannic acid is a very effective application for burns. That the Lilly Research Laboratories have found it so is attested by a new Lilly item that recently appeared on the market, called Amertan. It is composed of tannic acid, 5 percent and the Lilly germicide Merthiolate, 1:5000, combined in a water-soluble jelly base. Amertan dressings are reported to be soothing and analgesic and can be used on areas where it would be difficult to obtain satisfactory results with an astringent solution. The use of Amertan is indicated in minor burns or deep-seated burns covering large areas. This product should not be handled with metallic instruments.

With the completeness of Lilly distribution and the ready acceptance of all Lilly Products by the medical profession, considerable demand will undoubtedly follow the introduction of Amertan. It is supplied in one and five-ounce tubes and in one and five-pound glass jars, through the wholesale trade.

Perhaps there is something you need listed in the Classified!

Measuring the Emotions

From an authoritative source, we have learned recently that hebephrenic patients require a measurably greater amount of glandular and other internal medication than do persons better adjusted to reality. This has been estimated rather authoritatively on a basis of twelve times as much of substances like thyroid extract and other similar measures. In other words, it takes twelve times as much medication to effect a change in a precox patient as it does in a socalled normal person. This to us seems a most important finding. It gives us a measurable and demonstrable clue to a method of approach whereby we can measure the relationship between soma and psyche.

We have known for a long time that the precox patient employs the mechanism of including extrinsic stimuli and retreats into a phantasy world of his own creation. He pushes away the exogenous impulses of the world with which he is surrounded and withdraws into the more comfortable if less practical world of his own making, the land of dreams where he can move the furniture and the occupants to suit his own pleasure and convenience. He no longer battles through with his surroundings; he no longer has to consider an adjustment to his enjoyment; he no longer has to consider the welfare or happiness of others; he no longer is forced to demand an adjustment of the other fellow to himself or of himself to the other fellow. This, in short, is termed withdrawal—a withdrawal from the exogenous world.

Now we find that he has also been withdrawing from the endogenous world. From the internal stimuli something takes place in these persons where they pull away from the stimuli that are unquestionably offered in a product like thyroxin. This to our notion begins to clarify the findings of men like Mott who found in certain groups of precox patients that the secondary sexual characteristics were less definitely marked and in some instances completely lacking. We begin to see how easy it would be for this mechanism to function in much the same way in vitiating the endogenous impulses which the glands of internal secretion were pouring into the economy of the patient. These findings it seems to us should not only give a definite clue regarding the question of medication, but should also furnish us with a working basis and a plan of attack whereby we could eventually find out more about the manner in which the psychological or affective life of these people affected their entire physical situation.

If we were to stop our inquiry at this point, however, it seems as though we would lose the most important value of this clue, namely, the apparently minor situations which we find in ordinary life whereby the health of the person is affected directly by affective situations. We have contended that this situation prevails for a long time, but this new finding seems to corroborate in a more or less scientific way the contention which we have held so long.

And along this same line we feel that we have not taken advantage of another situation which has long been known to medicine, and that is, the condition which prevails in hysteria as related to the visual field, this phenomenon being so well known that we predict a resentment on the part of our readers at our mentioning it. But we cannot resist repeating that the visual field of an hysterical woman will always give an indication of the severity of her illness, and this phenomenon is not due to physical causes as has been shown repeatedly. As her condition improves, if it does, the visual field enlarges and she no longer shuts out the visual impulses to the degree which she would when the disease was at its height. Here again we have a measurable functional situation which is analogous to the many other functional changes which we find taking place in hysteria along other pathways.

We are hopeful that this new information which will undoubtedly be published in greater detail as it is worked up will prove a stimulus to the further correlation between the interrelationships which unquestionably exist between the soma and the psyche.—*Med. Jour & Record.*

Gastric Hyperacidity?

A few years ago it was quite common to hear the term "hyperacidity" used by clinicians with reference to the composition of the gastric contents. There is an implication in the term that the acidity of the gastric juice itself is subject to variations in acid concentration as it is secreted; in other words, the fluid emerging from the gastric secretory cells might be equivalent to 0.1 per cent of hydrochloric acid, for example, at one time and to 0.4 per cent at another. Obviously, unless the uncontaminated secretion was analyzed such a conclusion could scarcely be warranted. Adventitious substances, such as swallowed food or saliva, or mucus might dilute or neutralize the pure secretion and change the composition of the material analyzed. Hence the discussions became more guarded. A hyperacidity of the gastric contents, it was pointed out, is not necessarily due to a corresponding increase in the acidity of the secretion poured out by the mucous membrane. Pure gastric juice obtained from a fistulous opening into a normal stomach and not mixed with food usually showed a much higher acidity than is ordinarily found in gastric contents, the total acidity of the pure human juice being reported to range from 0.35 to 0.56 per cent in terms of hydrochloric acid. Fifteen years ago Hewlett, for instance, pointed out that while hyperacidity of the gastric contents may possibly be due to the secretion of a more acid gastric juice, it may also be caused by the secretion of unusual quantities of a normal gastric juice or by a failure on the part of some of the agencies that normally dilute or neutralize the gastric contents. The clinical differentiation of these various factors is not easily made; but animal experimentation as well as observations on men with gastric fistulas has shown that pure gastric juice possesses an acidity that is rarely approached and never exceeded by the gastric contents in conditions of hyperacidity. It seems probable, Hewlett concluded, that the latter is due not to the secretion of an unusually acid juice but to the secretion of a normal juice in excessive amounts or to an insufficiency in some of the neutralizing factors.

Textbooks of today accordingly tend to identify hyperacidity with hypersecretion, admitting that this is brought about not by concentration of the gastric juice but by production of a larger volume of fluid. Hyperacidity, or hyperchlorhydria, thus becomes identical with hypersecretion after ingestion of food. Many years ago, in 1910, the Russian physiologist Pavlov ventured the conclusion—it was merely a hypothesis—that the gastric juice as it flows from the gastric glands possesses a constant acidity. This has repeatedly been affirmed and occasionally denied. The German physiologist Rosemann upheld the theory that the chlorideion brought to the gland is secreted at a definite fixed concentration, part of it unchanged as sodium chloride and part converted into hydrochloric acid, and that the extent of this change governs the acidity of the secreted juice.

It might be assumed that "pure" gastric juice could readily be obtained by use of a stomach tube. All such mechanical devices are likely, however, to promote a production of mucus which will combine with the acid and alter the gastric acidity. Hollander and Cowgill appear to have castered the difficulties in experimental animals by collecting the secretion from isolated gastric pouches without any irritation or contamination. It is clear from their convincing data that variations in the rate of secretion are not of necessity accompanied by corresponding changes in acidity. The value of the maximum acidity in pH units was 0.91 ± 0.02. There seems to be an agreement among all species studied. Deviations from this maximum are ascribed to contamination of the secretion of the parietal cell by that of the mucus-forming and peptic cells. A lymph transudate and epithelial detritus may perhaps play a minor part. The authors advance the view that the chemical mechanism by which the acidity of gastric pouch juice is reduced depends on two factors: (1) a simple dilution by fluids (mucus, peptic secretion, etc.?) containing a large concentration of neutral chlorides, as a result of which acidity is reduced much more than is the total chloride content; (2) an actual neutralization by the bicarbonate in at least one of the fluids, as a result of which there is a further marked reduction in total acidity. Mucin probably plays only a minor part in this second process. The hypothesis regarding the constant acidity of the secretion of the parietal cells seems now to be amply substantiated. The word hyperacidity ought to be dropped from clinical nomenclature.—*J. A. M. A.*, June 27, 1931.

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In a great many different kinds of diseases, most physicians regard it as routine practice to reinforce specific treatment with a reconstructive agent. And because of the long list of diseases with which calcium deficiency has been generally associated, this valuable salt has become of first rate importance in reconstructives. Many authorities consider it as an essential for undernourished children and for pregnant and nursing mothers.

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Will Prevention Replace the Cure of Rickets?

There is an old adage that runs "For every child a tooth." While not all mothers of course lose a tooth with each child, nevertheless this occurrence was frequent enough to be recognized by folklore.

It forecast what science has proved today: that the demand of the foetus for lime is so great as to withdraw this vital salt from the bones and teeth of the mother if the supply is not sufficient.

With all of today's knowledge of calcium, the frequency with which rickets appears in infants indicates that most mothers' diets, in spite of doctor's warnings, are lime poor.

Errors of nutrition committed during pregnancy may easily produce derangements of health whose effects on mother and babe may last throughout life. This was the solemn warning of T. R. Parsons issued last year. It was really prophetic of the day not far distant when doctors will universally agree that it is better to prevent rickets than to cure it.

There is already a definite tendency in this direction. Many doctors are supplementing mothers' diets with additional calcium.

One of the preparations which physicians are employing for this purpose is Hagee's Original Cordial Compound, which contains calcium and sodium glycerophosphates, salicylic acid, and tasteless fat-free extract of cod liver oil. While the preparation is sold in all drug stores, the makers offer to send a full size free sample to all physicians if you will write. Address the Katharmon Chemical Company, 101 N. First Street, St. Louis, Mo.

Pantocaine

Pantocaine is a new compound intended for local anæsthesia. According to a report of Dr. Kiess its advantage compared with novocain is that the duration of anæsthesia is much longer, up to five hours, even in a weaker than the usual novocain solution. For anæsthesia by infiltration a 0.5 per cent solution was used and also in lumbar, sacral, and splanchnic anæsthesia. For anæsthesia by loss of nerve conduction a higher concentration, up to 5 per cent, was necessary. Sometimes headache and vomiting developed but without any serious consequences. Dr. Wiedehopf, of the Marburg University Clinic, points out too that pantocaine is longer efficacious and less toxic than novocain, that it has no irritating effect and that it has proved valuable in infiltration and lumbar anæsthesia. It is moreover less expensive than novocain. —*Canad. M. A. J.*

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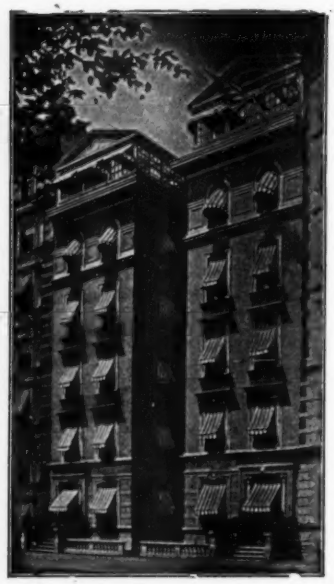

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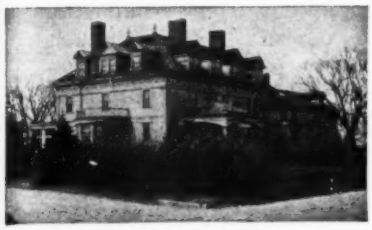

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Suggestions on Cancer From the United States Public Health Service

The following interesting list of suggestions was submitted by Dr. A. M. Stimson, Medical Director of the United States Public Health Service, Washington, D. C., and was of such interest that the Directors of the Society felt that it should be shared with readers of the *Bulletin*. Dr. Stimson's suggestions involved his views as to activities which the Society might undertake. Several of them are already being carried on and others or very similar activities will undoubtedly be undertaken in the future. Dr. Stimson's suggestions are seven in number of follows:

(1) Attempt to secure better instruction in cancer in the medical schools. Possibly a minimum course in cancer might be worked up by the association and submitted to the colleges for adoption.

(2) To stimulate the above, approach the State Board of Medical Examiners with the proposition that they include questions on cancer in all of their examinations. These could be included in the examinations in the subjects of Pathology, Practice of Medicine and Surgery.

(3) Attempt to secure the recognition by State Health Boards and their health officers of the fact that cancer has public health aspects, and that something can and should be done by official health agencies. The experience of Massachusetts should be brought to their attention and a similar plan, improved if possible, recommended for their adoption.

(4) Attempts by all means to secure the establishment of adequate institutions for the treatment of cancer properly manned by experts and equipped with apparatus. The first objective in this program might well be to have at least one such institution for each State.

(5) Make use of the Public Health Service to the full extent of its possibilities. Through its publications it can materially assist in the dissemination of approved information whch the Society wishes to put across. Opportunities can be afforded for representatives of the Society to meet the assembled state health officials at the annual conference, as Dr. Ewing did last year.

The National Institute of Health of the Public Health Service is empowered to accept donations for establishing fellowships anywhere in the world. These could be used for the study of cancer and in this way for helping to build up the large expert personnel which will be needed.

(6) Since research will play a great part in determining the details of all that has gone before, the policy already adopted. of keeping in touch with research in cancer should be continued. Since the new high-voltage x-ray tube may have great possibilities the Society should have a technical representative whose duty it would be to keep fully informed on all new developments along that line.

(7) The efforts which have been made in the direction of estabishing a central clearing house and museum for cancer specimens are admirable, but should be greatly extended and enlarged. It would seem that the Public Health Service should be in a position to take part in this work. Care should be taken in this development to prevent one-sidedness and the adoption of any not generally accepted system of diagnosis or classification.—*Bulletin of the Amer. Soc. for the Control of Cancer.*

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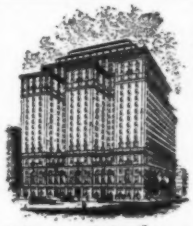

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Malnutrition in Children: An Attempt at Standardization of a Dietary

Rosenberg (*Am. J. Dis. Child.*, 1931, 41, 303) selected two groups of underweight children each consisting of twenty-five subjects. These were matched according to age, height, weight and sex. One group was put on a special dietary and the other on a representative American dietary. The first was the experimental group, while the second was the control group. The progress of the two groups was compared at the end of six months. The experimental dietary consisted of a quart of certified milk daily, a variety of nuts, whole grain cereal products three times a day, fresh fruits and fresh vegetables twice a day, meat and eggs being excluded. In this diet it was evident that there was a preponderance of basic over acid-forming elements.

The increase in weight proved the experimental diet superior from the standpoint of rapidity as well as of permanence of results. The increase in weight in the experimental group at the end of the six months' period was 32 per cent greater than that in the control group. The increase in height was 24 per cent greater in the experimental group than in the control group. The more extensive anthropometric data established the validity of the results in the study of the weight gains, while further technical treatment of these data in relation to the girths of the arm and calf and the subcutaneous tissue over the biceps corroborated the superiority of the experimental dietary. The results proved the experimental dietary to have been superior for girls to a greater extent than for boys. It is likely that psychic factors played an important rôle in the production of the sex differences. The studies of the blood showed no difference in progress in the two groups. The urinalyses indicated a much lower acidity for the experimental group than for the control group. The stools of the two groups showed a decided contrast in physical appearance, with a diminution in the total number of bacteria in the stools of the experimental group. The studies of nitrogen balance showed a slightly better retention for the experimental group. The experimental dietary was proved to be rich in vitamin B complex by the studies on rats. This is an important factor in a child's dietary.—*Am. Jour. Med. Sc.*, May, 1931.

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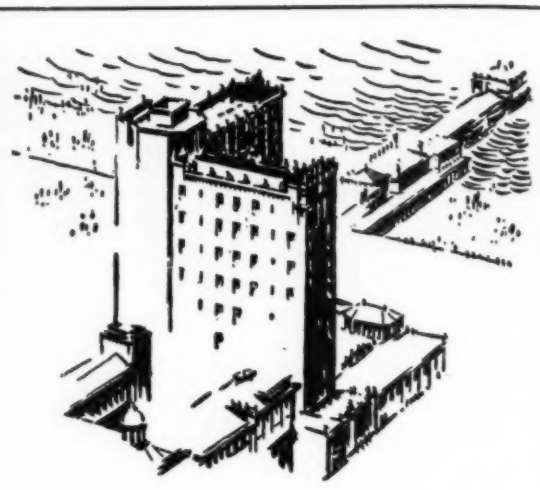

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3. Exclude the following foods: Soups, coffee, tea, cocoa, sweet and salty and highly seasoned foods, ice cream, candy, pastry, cake, jellies, jams, etc., condiments, bananas and raw apples. Meats, eggs and vegetables forbidden for supper to make it easy for the digestive system.
4. Child to be in bed by 7 P.M. If very nervous, school is prohibited temporarily, and a nap required in the afternoon. No play after 4 P.M. Child to be entertained by toys and books in a chair. Moving picture shows, music lessons and evening home lessons prohibited.
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Regular hours for urination at night, namely, 7 P.M. on going to bed, 10 P.M., and not again until 6 A.M. If child cannot go eight hours, it should urinate at 2 A.M. After a few weeks the voiding at 2 A.M. can be omitted. Punctuality is of prime importance.

Day wetters to urinate at regular intervals from three hours during the day to every twenty minutes. Interval gradually lengthened.

This in a brief way covers a few of the important problems involving the urinary tract of infants and children which confronts the pediatrician, where consultation with the Department of Urology will aid in establishing a diagnosis.

In closing, a word upon the place of uroselectan in the field of urological diagnosis:

Uroselectan contains a high iodine content, which permits visualization of the urinary tract when administered intravenously. In normal conditions, the drug passes through the kidneys and is eliminated in the urine, so that it is also a test of renal function in a way. At times the elimination is so rapid that the shadow cast is a very faint one, and the outline of the pelvis and ureters difficult to read. If no kidney function remains, there is of course no shadow. The best pictures are obtained in kidneys which still possess some function associated with an incomplete obstruction. Stones may be obscured by the density of the medium, so that a plain plate should always be made before the drug is introduced or a retrograde pyelogram is made. Uroselectan plates must be properly interpreted, which means some considerable experience upon the part of the examiner. Finally, the diagnosis must not rest alone upon the *x*-ray, but by the study of separate urines, the history, and physical examination, otherwise disastrous mistakes will be common. Uroselectan has its place and at times is invaluable. However, the consensus of opinion at present is, that it cannot take the place of the cystoscope and ureteral catheter as a routine method of diagnosis. It should be used where cystoscopy and ureteral catheterization is impossible or contraindicated by the condition of the patient.—Parmenter—*N. Y. State J. M.*, June, 1931.

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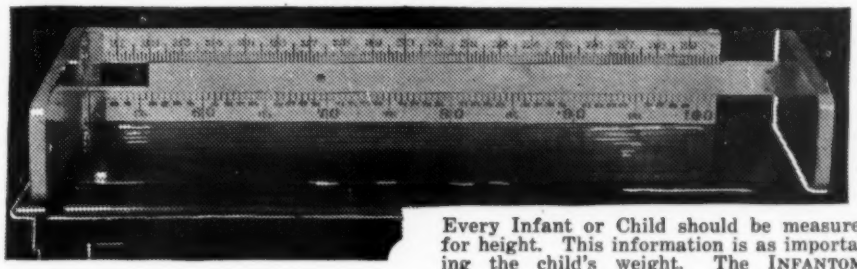

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The Conservation of Vision

The League of Nations Child Welfare Committee has received a report on the education of children with seriously defective vision from Dr. F. Humbert, of Paris, Secretary-General of the International Association for Prevention of Blindness.

Special "sight-saving" classes for these children are now inaugurated, according to the report, in the school systems of Canada, Denmark, England, France, Germany, Scotland, the United States, and Wales.

In such classes, through the use of books in large type, movable desks, ideal lighting and special teaching methods, children with little vision are not only given the same education that children with full vision receive, but they are taught how to conserve their remaining sight and they are guided to select occupations in which their defective vision is not likely to be increased.

A copy of the report has been sent to Lewis H. Carris, Managing Director of the American National Society for the Prevention of Blindness, New York City, the organization which sponsors establishment of sight-saving classes throughout the United States, where the idea has been widely adopted.

Dr. Humbert's investigation was in line with the policy set forth in The Children's Charter adopted by the League of Nations "to ensure the normal development of each child by every means."

"The Child Wedfare Committee will be struck by the unequal treatment which these handicapped children receive," the report states. "Progress is undoubtedly possible, and the matter has a claim on the attention of a Committee which has set out to encourage all measures designed to alleviate the lot of suffering children. Some countries are farther advanced than others, and their long experience carries conviction, but other countries have been slow to follow their example.

"In most countries, children who can still make use of their remaining eyesight are either sent to schools for the blind or, if their parents refuse to allow this, have no means of education or development. They suffer either through being assimilated among the totally blind or through being regarded at school and in everyday life as backward, simply because they have been unable to acquire knowledge commensurate with their intellectual abilities."

The special educational methods employed for children with defective vision in England seem to be the most up-to-date at the present time, according to the report. The first class for "high myopes" was established in London by Dr. Bishop Harman in 1908 and was soon followed by others. There are now 79 of these classes in Great Britain.

The United States, which followed on a bigger scale the example set by England, now has 375 sight-saving classes. The only class in France is to be found in Strasburg, but the French Ministry of Education has recently become interested in extending the movement. German classes exist in Berlin, Hamburg, Leipzig and Dortmund.

English authorities estimate that the number of children whose sight is too weak for them to benefit from an ordinary education provided for healthy children is approximately one per 1,000 of the school population. American authorities, however, believe it is closer to one per 500 of the school poulation.

Hunger Pain

Of all the symptoms associated with disorder of the stomach hunger pain is the most important, for it at once arouses suspicion of an organic lesion close to the pylorous. This fact, whose enunciation we owe first and foremost to Lord Moynihan, has made it possible during the last 30 years to diagnose and treat peptic ulcer with precision, whereas previously the condition remained undetected among the congregation of symptom-complexes known as dyspepsia. It was long supposed that hunger pain was the expression of an excess of free hydrochloric acid in the stomach, and this was the dogmatic teaching of authorities such as C. A. Ewald, F. Riegel, and S. and V. S. Fenwick. Their opinion was almost universally accepted, and is indeed the basis for the recogniton of "hyperchlorhydria," which, on insufficient grounds, is regarded by many as a disease. More recently clinicians have been largely converted to the belief that excess of acid is only an indirect cause of the pain in that it sets up painful contractions of the gastric or pyloric muscle. Now, however, a small but influential body of opinion goes further and has come to hold that the acid factor has little if anything to do with the genesis of hunger pain, considering that hypertonus of the stomach and pylorospasm alone are causes of pain, and may be present without any increase in the acidity of the gastric contents. Of workers in this country, T. I. Bennett, J. A. Ryle, A. F. Hurst, and I. T. Venables, may be quoted as among the more prominent exponents of this view.

A valuable contribution to the mechanics of hunger pain has just been published by Oline Christensen (Pathophysiology of Hunger Pains. By Oline Christensen. Collected papers from the Medical University Clinic B. Edited by Knud Faber. Copenhagen. 1931.) Like A. J. Carlson and his pupils she has followed the method of W. Boldyreff, which, in addition to gastric analysis and radiography, consists in introducing a balloon tube into the stomach so that a continuous record of gastric tonus and movement can be obtained. By these means she has collected a large series of observations both of the normal and of various pathological conditions. The investigation of normal subjects confirms the existence of periods of vigorous contraction alternating with almost complete rest. The presence of a sufficient amount of gastric contents, either in the form of food or of gastric secretion alone, produces a change in the contraction curve, weaker contractions replacing the previous vigorous ones. In some normal persons 200 c.cm. of water is enough to cause this change; but in the majority a larger amount of water is required. A food which promotes vigorous gastric secretion is the most effective in diminishing the fasting contractions; while a mixture of egg and milk was found to be the substance best calculated to produce gastric rest. Examination of patients suffering from various diseases reveals that typical hunger pains are always associated with vigorous contractions of the stomach when it is empty or very nearly empty, but such contractions are not necessarily greater in amplitude than those previously observed when larger amounts of food were in the stomach. The relief of hunger pain is due to the reduction of such contractions which occurs in the presence of an adequate gastric content. Titration of samples of the gastric contents shows that the concentration of free hydrochloric acid bears no relation to the vigor of the painful contractions in such cases. As in her purely physiological observations, Christensen noted that egg and milk was the food which most readily caused relative gastric rest and an abolition of hunger pain.

Much of this new work is a repetition of Carlson's classical observations, but other parts from an ample and scientific corroboration of the opinion long expressed by some of the physicians studying this particular subject. Actually it is of high importance because it lays stress on the extreme utility of rest in the treatment of gastric disorders. W. C. Alvarez has written:

"One of the lessons to be learned by the clinician from the work on hunger contractions is that he cannot put the stomach at rest simply by withholding food. Actually, in the presence of an ulcer, the powerful hunger contractions are much more disturbing, and probably more harmful to the patient, than are the waves that course over the lower end of the stomach during the periods of digestion; and certainly, one of the easiest ways in which these patients can be kept comfortable, is by giving them something to eat every two hours."

The value of alkalis in the treatment of gastric ulcer has been emphasised, and probably over-emphasised, during the last decade. While an ulcer bathed in strong gastric juice must necessarily be in a bad medium for healing, it is clear that rest is the all-important factor, as Hurst, Bennett, Ryle, and others have long insisted. Comprehension of the mechanism of hunger pain is necessary before one can understand how gastric rest should be sought and attained.—*The Lancet*, April, 1931.

Cancer

1. An early clinical diagnosis of cancer is largely a speculative matter.
2. Biopsy with microscopic examination of tissue by a competent pathologist is essential for exact diagnosis in the early lesion.
3. To quote W. Sampson Handley—The detection of early cancer is not a one-man job. It may require the cooperation of the patient, the family doctor, the specialist, and the pathologist. It may, in some cases, be impossible even then.
4. If we are to reduce the incidence of cancer, physicians must be on the watch for socalled precancerous conditions as these are usually curable.
5. Much more is being done today to cure and to alleviate cancer than is realized by the profession and the public. Therefore, the usual attitude of pessimism which seems to be associated with the diagnosis of cancer is not altogether justifiable.
6. The responsibility of seeking medical advice promptly for any and all symptoms still rests with the public.
7. The only forms of treatment that have stood the test of time are those dependent upon surgical removal of the lesion with the knife or cautery and treatment with radium and *x-ray.—William P. Healy, M.D., in N. Y. State J. of Med.*, June 15, 1931.

Symbols of Sex

The symbol ♂ of the male sex represents the spear and shield of Mars, that ♀ of the female is the mirror of Venus. They descend to us from the alchemists.—*Canad. M. A. J.*

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The Hygiene of the Towel

This paper is developed on a series of questions: (1) When the hands are washed in the usual manner are bacteria transferred to the towel in appreciable numbers? (2) When several individuals use a common towel, may infectious bacteria be transferred from one individual to another? (3) Will the repeated use for several days by one individual show an accumulation of bacteria on the towel? What is the sanitary significance of such accumulations? (4) Which of the three types of towels—Turkish, huckaback or paper—will prove most efficient in the removal of bacteria from the skin. (5) Which of these three towels will be most efficient in removing visible dirt from the skin? The summary of the results are that bacteria are transferred from the hands to the towel in surprisingly large numbers. Bacteria are readily transferred from one user to another through the medium of the towel. Most of the common disease producing bacteria even though in a dry state, may remain alive on a towel for at least 24 hours and generally longer, making the common towel a constant and continued source of danger. When the towel is used repeatedly by the same individual the numbers of bacteria on and in it are increased and some of these in turn may be restored to the hands of the user. Potential danger exists of a possible re-infection of the hands with disease producing organisms left on the towel by prior use. Repeated drying with an individual towel is not a good sanitary practice. The Turkish towel owing to its construction and a consequently greater number of points of contact with the skin, removes greater numbers of bacteria and dirt particles from the skin than the huck towel or the paper towel.—Pease and Himebaugh, *Am. J. Pub. Health*, 1931, 20.

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